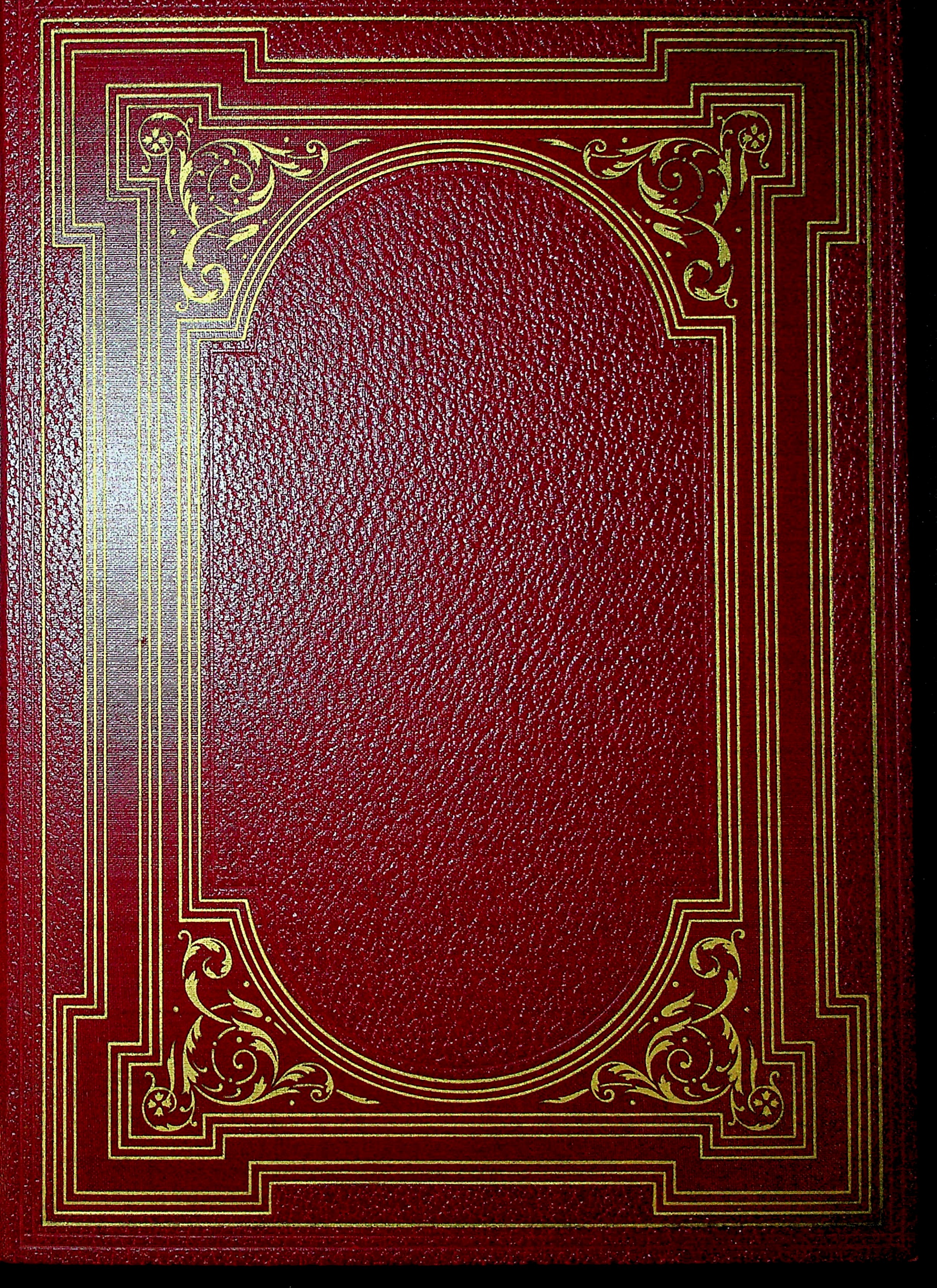
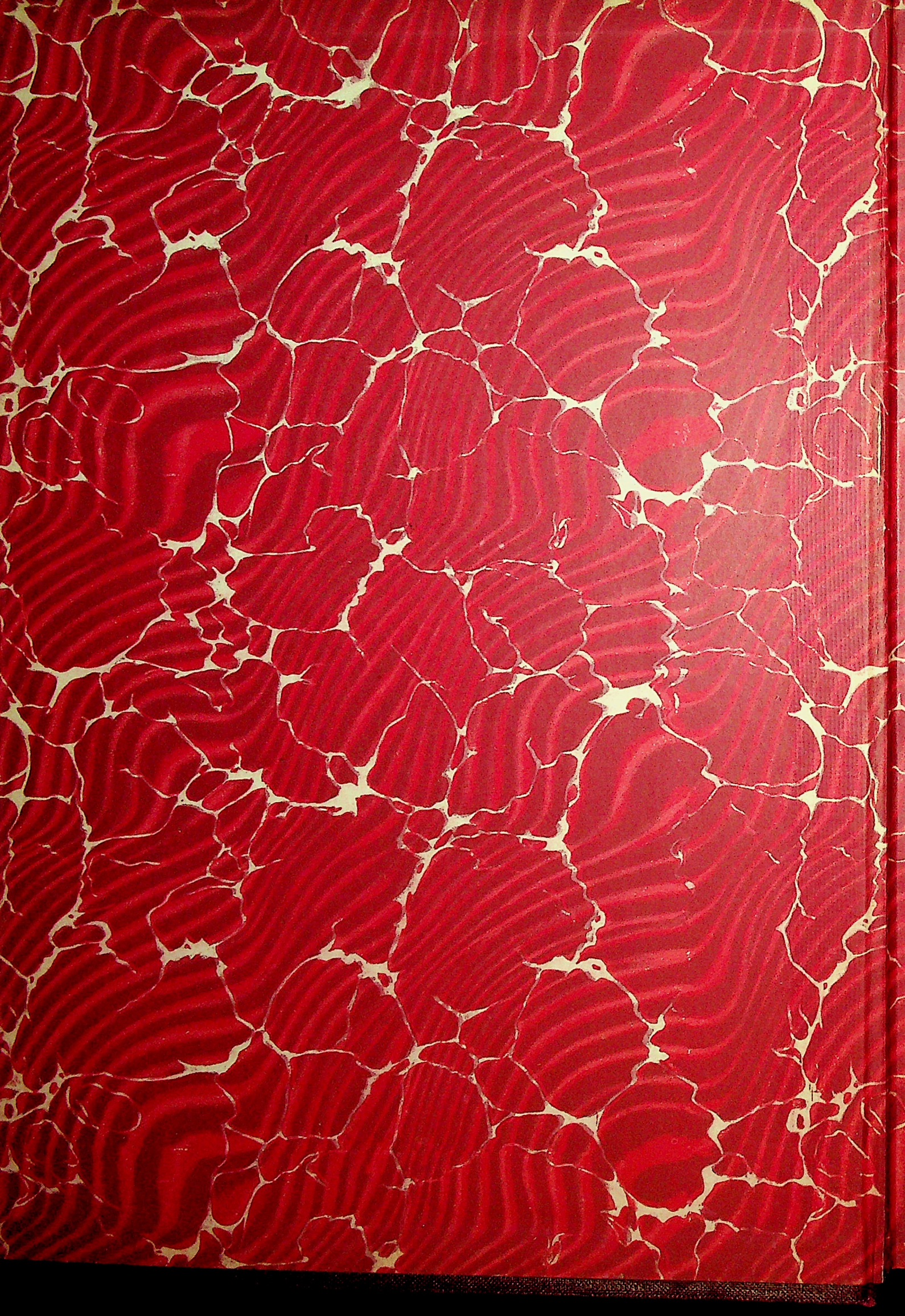








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Nineteen Hundred and Thirty-four
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The CABLE

year book of
COOPER UNION
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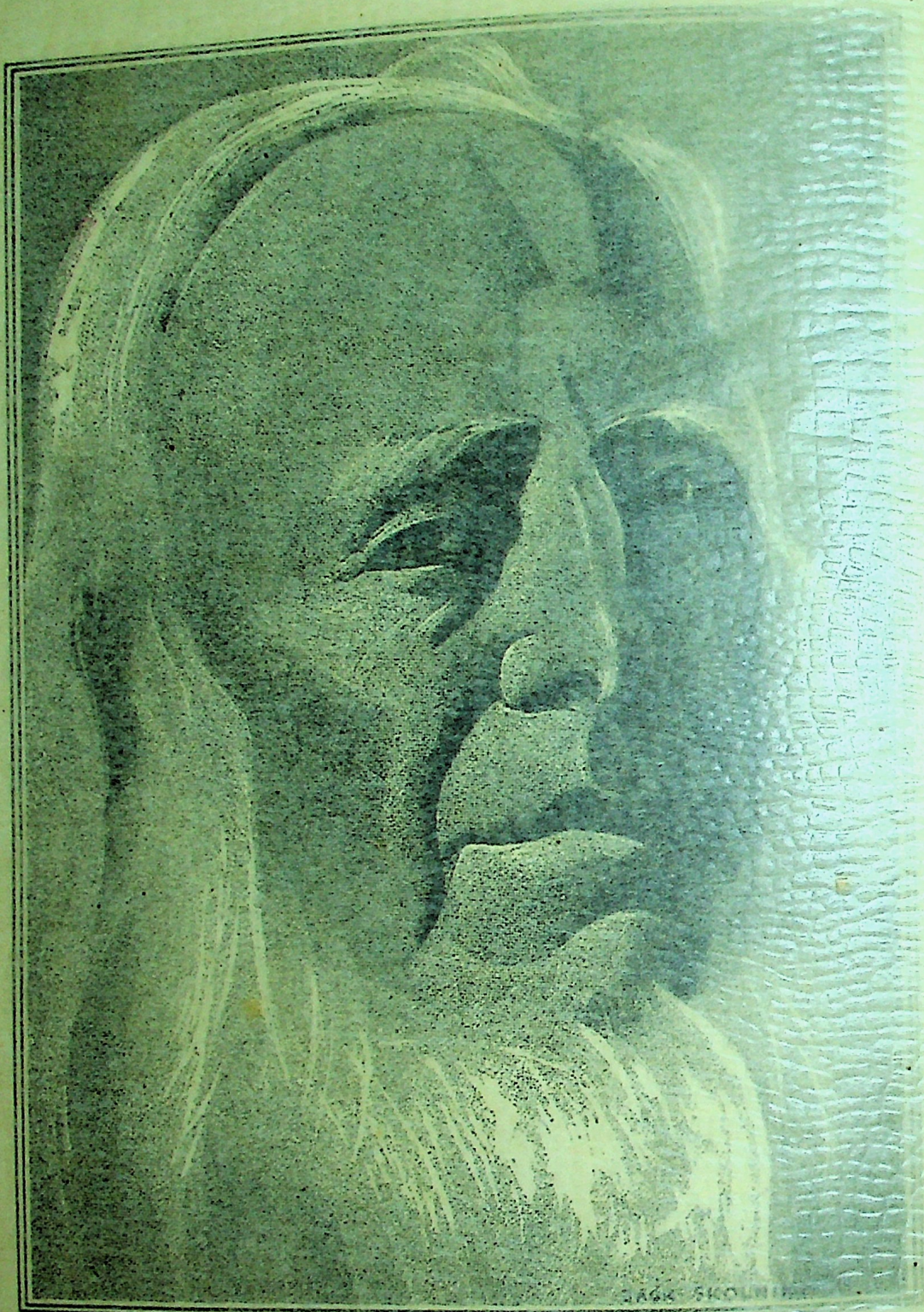


JUBILEE ISSUE

MCMXXXIV

Peter Cooper, Our Founder
1791 - 1883

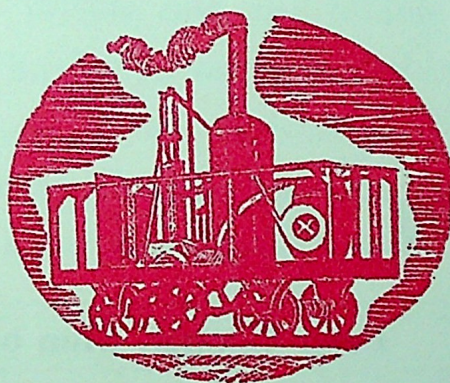
New York City



Peter Cooper, Our Founder
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The **CABLE**

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New York City

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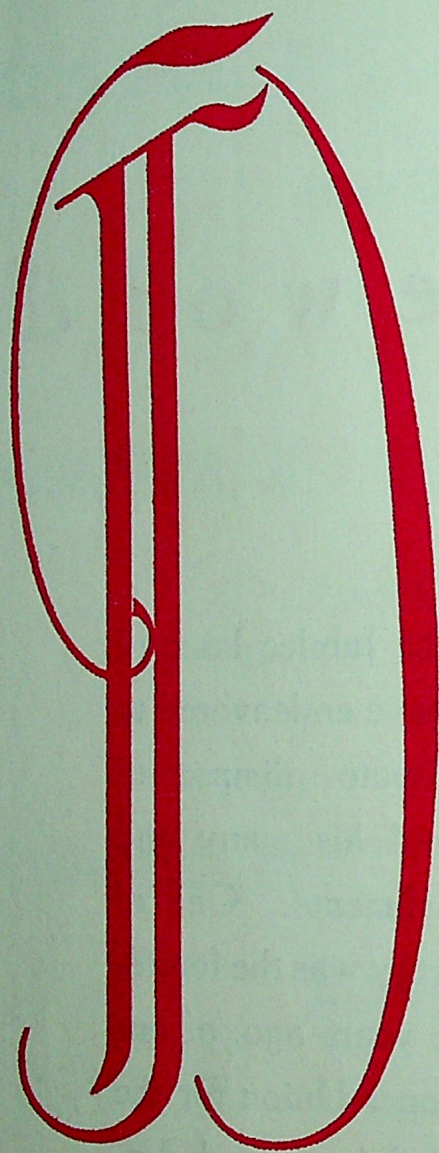
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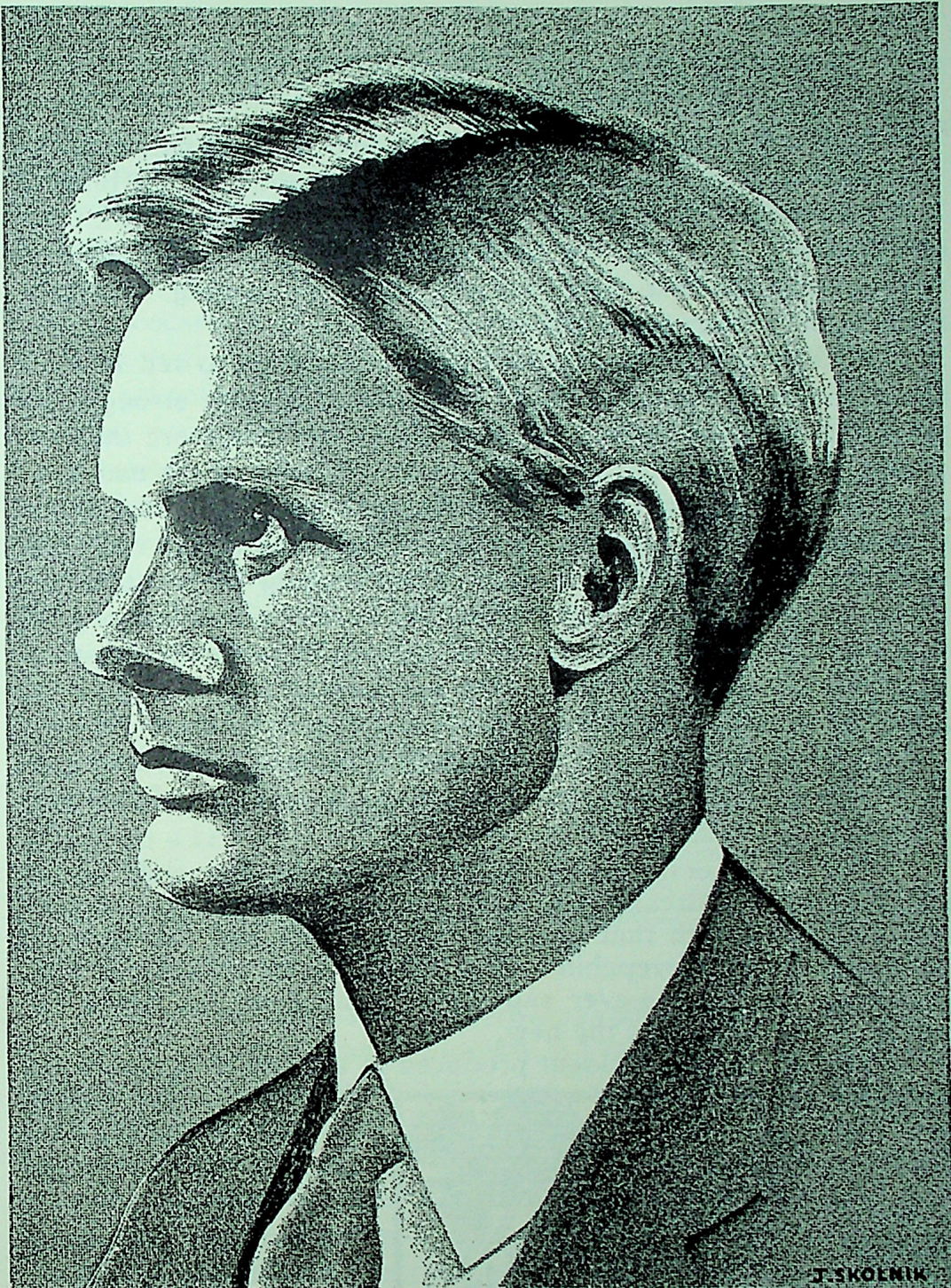
F o r e w o r d

Within this, the Jubilee Issue of The Cable, we have endeavored to portray an intimate glimpse of Peter Cooper and his many and varied accomplishments. One of the most noteworthy was the founding, seventy-five years ago, of our college, The Cooper Union for the Advancement of Science and Art.



edication.

To Austin Purves, Jr., Art Director of The Cooper Union, this Jubilee Issue of the Cable is respectfully dedicated as an appreciation of his distinguished service to the Institution, and with gratitude for his kindly helpfulness in the preparation of this volume.



Austin Purves, Jr.

PETER COOPER

THE birth of great men is often insignificant and passes unobserved and unsung. The world knew nothing of the birth of one boy in Little Dock (now Water Street) New York City, on February 12, 1791. To John and Margaret Cooper, however, this son was the first child of a new era. His naming, therefore, seemed of peculiar importance.

In this son's own words—"My father used to tell how he came to call me Peter. When I was born he became strongly impressed with the idea that I would some day have more than ordinary fame, and what name he should give me was a matter of serious and frequent thought. While walking on Broadway one dark night it seemed as though a voice spoke to him in a clear and distinct manner: 'Call him Peter!' That seeming voice settled my name. My father said that he felt that I was to be of great good in some way; and his remarks, with my mother's, concerning their aspirations and hopes for me acted as a stimulus and made me anxious to fulfill their wishes and not to disappoint them."

As we all know, the boy so named more than fulfilled his parents' hope for him. Ford's discussion of the significance of Cooper's naming is interesting:

"To his veteran soldier-father he was the first child of the new era; and the dreams that were dreamed over him were doubtless connected with that glorious future which had just dawned upon the federated republic. The choice of an unfamiliar, non-hereditary name, however suggested, symbolized the break between the old time and the new.

"Above all, this incident produced in the son thus christened the profoundest effects, the deepest motives, that can inspire a boyish soul—the belief in a beneficent mission, the yearning to discover it, the resolve to execute it, and the conviction that it was to be directly connected with the prosperity and



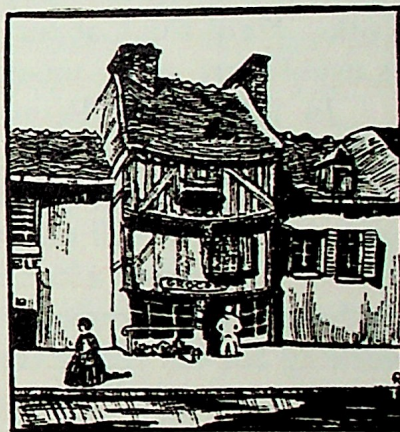
Church In Which Peter Cooper Was Christened

progress of the great nation, the life of which began with his own."

Peter Cooper was descended from the purest of old English and Scotch stock. In his father John a sturdy, robust body had its complement in a strong, devout, God-fearing mind. Margaret Campbell, his mother, was a woman of faith and patience. His parents gave him a heritage of honesty, courage and good sense.

Such basic qualities were essential for a youth whose early training consisted of short apprenticeships in a variety of trades; whose formal education, if such it may be called, consisted of a year of schooling, half of which was only "half-day" school.

The young Peter very soon became accustomed to changed environments. When he was only three years of age, the family moved from New York City to Peekskill. There his father built a country store. Evidently he prospered for some time, for Peter Cooper records in his "Autobiography" that his father built a Methodist church there and issued a general invitation to all itinerant Methodist preachers to stop and visit him. Business was good in Peekskill so long as it was carried on a credit basis. Collections proved not so easy. Before long, John Cooper found most of his money, and property too, in the hands of others.



Cooper's Store in Peekskill

He returned to his previous occupation—hatmaking. This was the first of many trades with which Peter was to have at least an acquaintanceship. Little Peter was found very useful for pulling the fur and hair out of rabbit skins. In a short time his father dropped the business by selling out to Peter's eldest step-brother.

It was in this period that Peter acquired his negligible schooling. As he was growing up, too, he showed signs of that ingenuity which was later to give him the right to the title, Peter Cooper, Inventor. To aid his mother in her washing, he contrived a mechanical arrangement for beating the soiled linen. Of his own accord, at about this time he undertook the construction of a pair of shoes. After dissecting an old pair to discover what he could, he

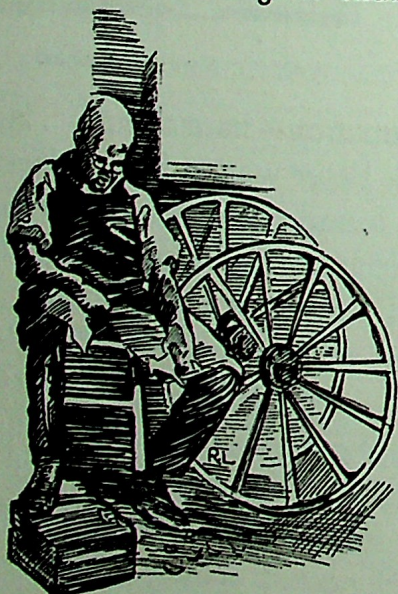
secured leather, thread, needles, and appropriate tools and made an excellent pair of shoes.

Despite or perhaps because of his curiosity, Peter was in all respects a normal boy, involved in the usual number of boy's scrapes and accidents.

His scope of industry enlarged as his father turned to the brewing of ale as a livelihood. It was Peter's task to deliver the full kegs of ale and to bring back the empty barrels. Despite hard work this too turned out to be unprosperous and the Coopers returned to the inevitable hatmaking. This was supplemented by a brick-making business in which Peter again proved his usefulness. He carried and handled the bricks for the drying process. After continued difficulties, the roving family moved to Brooklyn, then a prosperous town of 2000 inhabitants across the river from New York. Here the Coopers became hatters for the fourth time, and as usual were sadly unsuccessful.

In 1805 when Peter was about 14 years old, they migrated to Newburgh where John Cooper bought some property on which he built a brewery. Young Peter loaded with his own hands and hauled to the site all the stone used in construction of the building. With Peter taking a hand in the direction and the management of the business, the brewery was a partial success. Peter continued working for his father until 1808 when he was 17 years old.

Soon Peter again changed his occupation. He apprenticed himself to a coachmaker, one John Woodward. He showed the industry and ambition characteristic of all his work. While working for the coachbuilder he invented a machine for mortising the hubs of wheels mechanically, an operation heretofore performed by hand. His employer was apparently impressed with the youth's worth for at the end of his apprenticeship, Mr. Woodworth offered to build him a shop and set him up in the coachmaking trade. Peter declined this offer and went



John Woodward, Coachmaker

to visit his brother who then lived in Hempstead, Long Island.

While there he secured a position in a factory making machines for cutting cloth. At the end of three years, by frugal living, he had accumulated sufficient money to buy the patent rights for the State of New York for a machine for shearing cloth. He began his own business for the manufacture of these machines. He added many improvements to the cloth-shearer, and in the War of 1812 when the demand for these was great, he became prosperous as a result of their sale.

When in 1813 the now well-to-do manufacturer asked for the hand of Miss Sarah Bedell, a 21 year old girl of Huguenot descent, there was no difficulty about the marriage. Peter was 22 at this time. The newly-married couple prepared to settle down to a peaceful and happy life in a home in Hempstead. Mr. and Mrs. Cooper had six children, four of whom died in infancy. The two that survived were Edward, destined to be mayor of the City of New York, and Sarah Amelia, who was later to become the wife of Abraham S. Hewitt, another future New York mayor.

At home as well as in the shop Peter Cooper's inventive powers constantly displayed themselves. He contrived a versatile and unique device by which the cradle was rocked, the flies fanned away, and a lullaby played to sooth the baby—all at the same time. Certainly, even a mother of 1934 would consider herself thrice blessed with such a mechanism. A passing Yankee peddler was so intrigued with the apparatus that he gave his entire stock-in-trade for the patent rights for the device in the State of Connecticut.

At the close of the war, the domestic woolen mills were closed down and there was no market for Peter Cooper's machines. He turned his factory into a furniture shop, and selling it for what it brought, he moved to New York. Here, at the age of twenty-six, he set himself up as a grocer, purchasing a twenty-year lease on the ground where the Bible House now stands, opposite Cooper Union on Ninth Street. There he erected four wooden dwelling-houses. He continued in the grocery business for three years.

When he was 33 years old, Peter Cooper purchased a glue factory "with all its stock and buildings, on a lease of twenty-one years, for three acres of ground on what was then known as the 'old middle road' between Thirty-first and Thirty-fourth Streets."

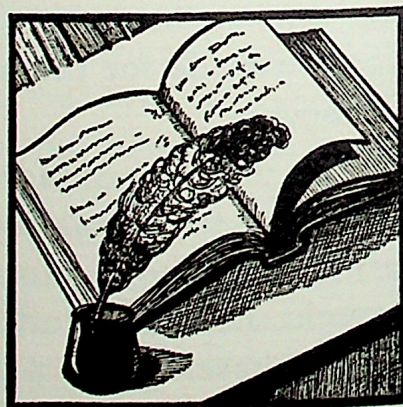


Glue Pot

Peter Cooper worked for the buyer and considered the other man's interest as well as his own. He practiced the Golden Rule and made it a paying business, while others regarded it as an impracticable, idealistic experiment which could not possibly bring profitable results.

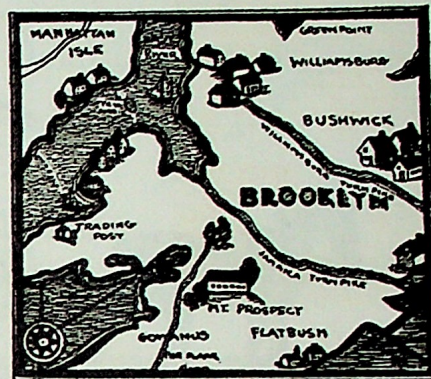
Through the excellence and cheapness of his products his concern acquired almost a monopoly of the whole domestic trade in glue, whiting, prepared chalk, isinglass, and oil—a monopoly which it held for a half century. His inventions improved the quality and reduced the cost of his product, while his energy, industry, and frugality steadily increased his surplus cash, and enabled him, without borrowing capital, to extend and expand his business. For many years he carried on the entire executive management of the firm without the aid of bookkeeper, agent, or salesman. He was at his factory at daylight to start the fires and prepare for the day's work. He then went about with a wagon to gather the hoofs of dead cattle. At noontime he drove into the city to make his own sales and purchases. His evenings he spent at home, making up his accounts, answering his correspondence, keeping abreast of the latest inventions, and reading and talking to his wife and children.

By these methods, simple and old-fashioned as they were, he built up a large business and accumulated a fortune which necessitated the use of all the modern methods of business administration. It was always Peter Cooper's proud boast that his business record had been one of unimpeachable integrity.



Cooper's Inevitable Accounts

When the lease of the ground on which the glue factory was built expired, Peter Cooper bought ten acres of ground on Maspeth Avenue, Brooklyn, where he erected a new factory building, and continued with his glue business. In the course of time, his son, Edward, and his son-in-law, Abram S. Hewitt, were associated with him in this business, and the firm of Cooper & Hewitt was formed.



Site of Glue Factory

Peter Cooper was too versatile to confine himself to only one undertaking. He began to speculate in land in 1828. His purchase of 3000 acres of land within the city of Baltimore resulted later in his important connection with the Baltimore and Ohio Railroad. The story of the Tom Thumb is interesting enough to deserve telling in full in a later part of this book.

In 1836, the progressive Cooper opened a rolling mill in a building adjacent to his glue factory on Thirty-third Street and Third Avenue. In 1845 he moved the plant to Trenton where he built a rolling mill which became the largest in the country. In New Jersey, he purchased consecutively a wire factory, blast furnaces, the Andover mines, and allied iron making shops, all of which were later formed into a company called the Trenton Iron Works. In 1879 Peter Cooper deservedly received the gold medal of the British Iron and Steel Institute for his contributions to the iron and steel industries.

During all this while he had continued the operation of the glue factory in New York City, and the income from this together with the money he was making from the iron works, brought him well on the road to millionaireshood. All this time he was supporting a large family establishment including several dependent relatives. Peter Cooper truly believed in and acted upon the proverb that "charity begins at home."

This versatile man's work in the laying of the trans-Atlantic telegraph cable, his invention of many machines and devices, his career as educator, philanthropist and public servant are colorful tales of a generous far-seeing man.

Peter Cooper was held in esteem by the people who worked for him and the people who worked with him. He was an early riser and in the latter part of his life, he might have been seen daily driving downtown from his home to Cooper Union. His familiar



Cooper in His Chaise

figure driving his one horse chaise himself was known all over the city and as he came down Broadway he was immediately recognized by everyone from the poorest Irish draymen to the occupants of the finest carriages.

For seven years after his candidacy for the presidency in 1876, the philanthropist lived happily and quietly until April 14, 1883 when at the age of 92 years and 51 days he died.

On the day of his funeral, all New York was a memorial to the greatness of Peter Cooper. All Soul's Unitarian Church, on the corner of Fourth Avenue and Twentieth Street, from sunrise on was crowded with thousands who passed through reverently to look for the last time upon their beloved benefactor, sleeping his last sleep. Eighteen students of Cooper Union stood guard and in the funeral procession the entire body of 3,500 students marched. Delegations from municipal and charitable organizations and uncounted thousands followed the bier. Broadway closed all its shops and was cleared of traffic, not by municipal ordinance but by a spontaneous feeling on the part of the people. The business sections of the city suspended activities and were draped in black. All the flags in the city and in the harbor were hung at half-mast. The church bells tolled. As the long procession moved slowly on its way to Greenwood Cemetery long lines of silent spectators stood bareheaded on each curb. The whole city mourned.



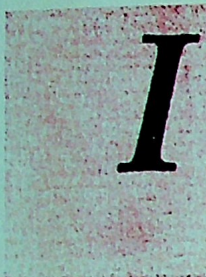
"If our lives have been such that we shall receive the glad welcome of 'well done, good and faithful servant', we shall then know that we have not lived in vain."



Entrance of Foundation Building

Administration

PETER COOPER, PHILANTHROPIST



It is difficult for us today to appreciate the remarkable understanding and great foresight exhibited by Peter Cooper in his courageous attempt to establish a free night school in New York City in the middle period of the nineteenth century.

Ideas first occurred to him when he was a youth struggling for education, and for a half-century he kept them in mind, occasionally altering them as changing circumstances necessitated, but never losing sight of them. Slowly, without friends, with little assistance, he started to gather funds for the opening of a free night school.

At this time millions of immigrants, uneducated and illiterate, were entering the country, adding to the misery of the poorer sections of the city. These industrial classes were demanding an outlet for their energies, an opportunity to rise upward in the economic scale. As Peter Cooper perceived all this, it strengthened his determination to assist these social conditions by providing free education, and the means for innocent entertainment, to those who were handicapped by circumstance.

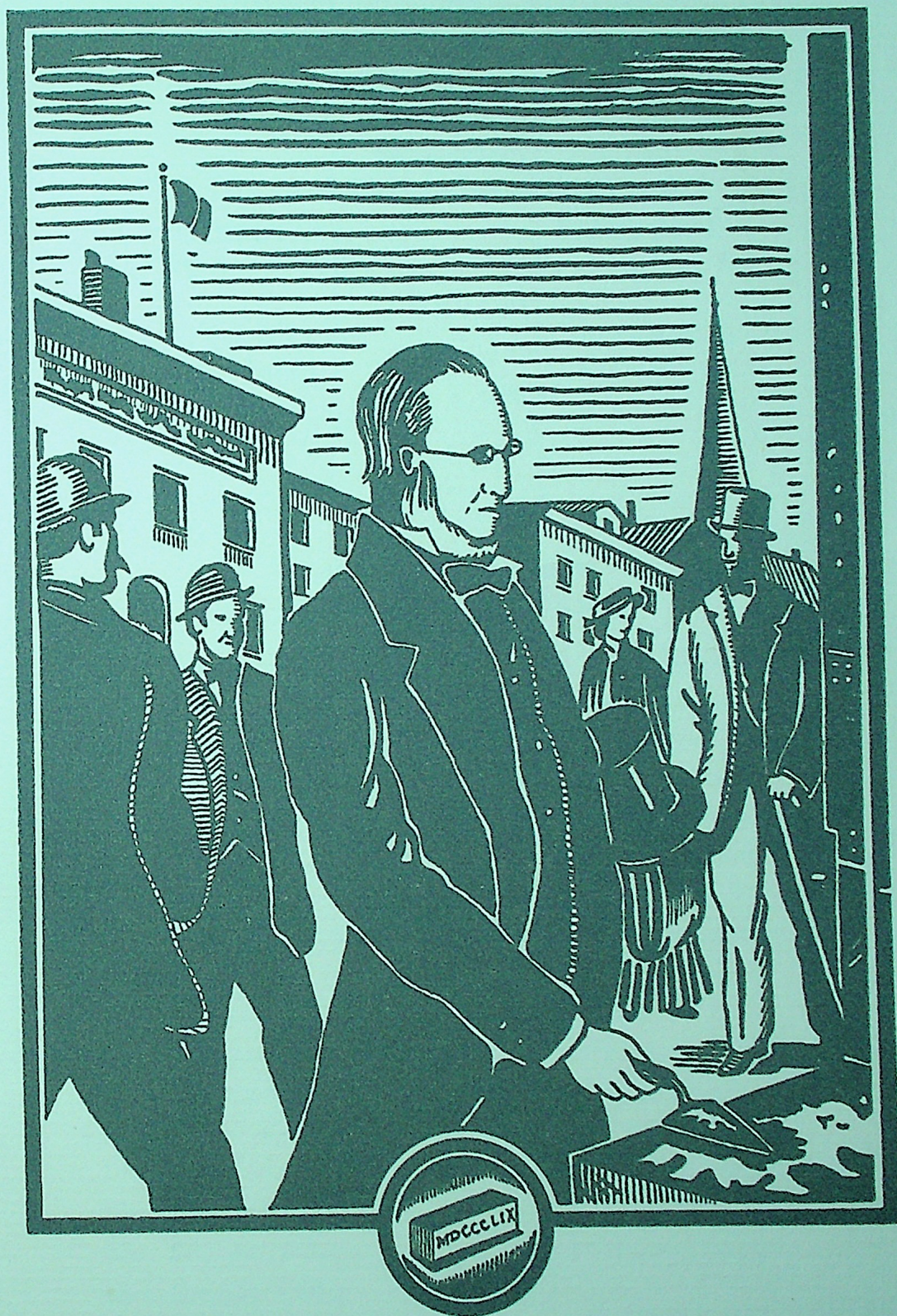
In 1828 the philanthropist's ideas became welded into a definite and practical form. At this time, he became acquainted with a Dr. Rogers, a fellow-alderman who had recently visited France. Dr. Rogers described to his friend the free polytechnic school maintained by the French government in Paris. He expressed particular admiration for the many appliances used to demonstrate the practical branches of applied science.

The founder's own words best describe the formation of his plans at this time:

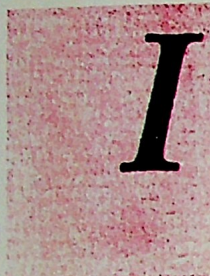
"I then determined, if ever I could acquire the means, I would build such an institution as would open its doors at night with a full course of instruction calculated to enable its mechanics to understand both the theory and the most skillful practice of their several trades; so that they could not only supply their labor to the best possible advantage, but enjoy the happiness of acquiring useful knowledge—the purest and the most innocent of all sources of enjoyment. . . ."

To some extent this became the framework of the institution he proposed to give to his native city. In 1853 the cornerstone of the Union was laid in the presence of a notable company, and the erection of a six-story, fireproof, brown sandstone building, constructed entirely of stone, brick, and iron was begun. While Cooper Union was in course of construction, the terrible panic of 1859 occurred. Despite financial risk to himself and to his business, Peter Cooper persisted in his undertaking. This first project was finished at a cost of more than \$600,000 for the land and the building.

Cooper Union, when built, was with the exception of certain churches and the City Hall, the tallest edifice in town. It was the first thoroughly fireproof building of cement and steel construction. The hope and belief that made Peter Cooper plan this first building for a long life has been fulfilled in the steady growth and progress of Cooper Union from its inception until today.



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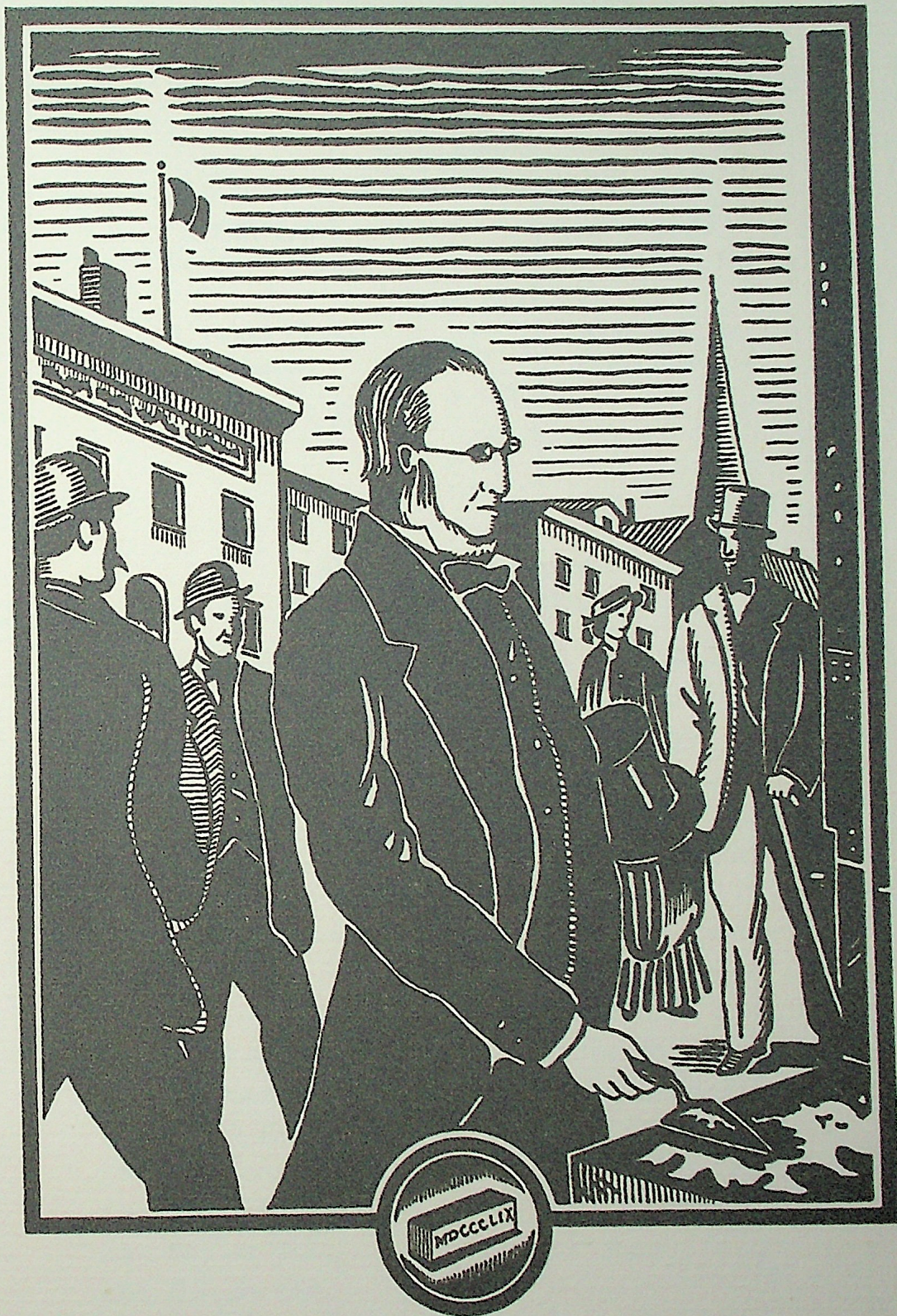
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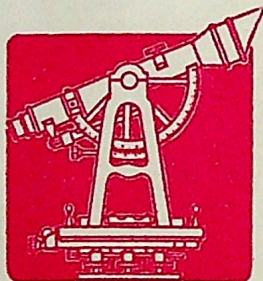
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GEORGE FREDERICK BATEMAN

Dean of the Schools of Engineering

George Frederick Bateman was appointed to the teaching staffs of The Cooper Union Day and Night Schools in 1907. Successively serving as an instructor in the Elementary Physics, Electrical Measurements, Advanced Physics, D. C. and A. C. Dynamo, and Thermodynamic Laboratories, he also was in charge of the courses in Elementary Mechanics and Heat and Thermodynamics. Discontinuing this work at the time of his naval service in the Great War, he returned to The Cooper Union in 1919 as Assistant Professor of Mechanical Engineering for the purpose of developing the course in Mechanical Engineering in the Institute of Technology. In this connection new classroom subjects were inaugurated and the scope of the laboratory work extended. In 1925, finances permitted the first of his plans for the development of the M. E. Laboratories to be realized by the installation of a Refrigerating Laboratory. This was followed by the Instruments and Auxiliaries Laboratory in 1926, and the enlargement of the Steam and Internal Combustion Engine Laboratories in 1928.

In 1925 he was appointed Professor of Mechanical Engineering and placed in charge of the Department. From 1921-1925 he was Chairman of the Oral Committee in the entrance examinations, and from 1922-1931 Chairman of the Student Relations Committee. In 1931 after having contributed largely to the constitution of the new six-year night courses he was entrusted by the late Dean Hartmann with the negotiations which led to their official registration by the N. Y. State Department of Education.

In April 1932, two days after the untimely death of the late Dean Hartmann, he was honored by the Trustees in being appointed Acting Dean, and again in May 1933 by being made Dean of the Schools of Engineering. To his regret, promotion and subsequent reorganization have denied Dean Bateman that intimate contact with the general student body which he enjoyed so greatly when Chairman of the Student Relations Committee. He still feels, however, his happiest moments are those spent in advisory service with the many students who due to various adverse circumstances find themselves in difficulties, scholastic and otherwise.

His practical engineering experience began in 1900 when for three years he served as a machinist's helper in power plant work. While a student at The Cooper Union his three summer vacations were spent in electrical testing and power plant work, as were also the summers of 1915 and 1916. In the early years of his teaching he engaged with his colleague, Pinto, of the Electrical Engineering Department in electrical and mechanical engineering test work.

During the World War he joined with Professors Lucke and Parr of Columbia University in serving as one of the three civilian volunteer instructors on the staff of the U. S. Navy Gas Engine School at Columbia University, for the period of the summer vacation of 1917. In May 1918 he was enrolled as Lieutenant (j.g.) in U. S. naval service and detailed to duties in the training of engineer officers at the U. S. Navy Steam Engineering School, Stevens Institute, Hoboken, N. J. While there he was in charge of the Department of Propulsion Machinery and later of the Advanced Course, being promoted to the grade of Lieutenant. He also organized and took charge of a field staff of investigators in marine engineering for the collection of practical data and information for class purposes, and of an editorial staff for the editing of the subject matter given in the entire school.

He has always been actively connected with alumni affairs, being a charter member of the Cooper Union Day Alumni Association and its first secretary from 1907-1914. He was also secretary of the Organizing Committee of the Cooper Union Alumni Association, and the first secretary of the newly formed Association from 1908-1910. In 1916 he was appointed a member of the Organizing Committee of the Cooper Union Alumni Federation, and by that fact is a member of the present Federation.

Today, in his capacity as Dean of the Schools of Engineering, Professor Bateman is liked and admired by both student body and faculty.

ENGINEERING AND ITS FUTURE

What the future of engineering is to be, who can say? If it continues to advance as of late by almost geometrical progression, the mind of man can hardly conceive what it will become in fifty years more! Every scientific discovery is certainly going to be grasped quickly by the engineers and put to valuable practical use by them for the benefit of mankind, and it is only their intimate association with pure scientists that the greatest possible development of the world can be obtained.

Ever since the beginning, the engineers and men of pure science have, by their work, added to the sum of human knowledge and happiness. The glories of ancient civilization would never have materialized had it not been for the engineers, matured in studies of pure science. Since the dawn of history the engineer has had the right to be placed among the greatest of his contemporaries. As the years rolled on and with the Renaissance, the world awoke; who awakened it? Was it those, supposed to represent all there was of the intellectual life and material worth of the times, who for hundreds of years had held man in tyranny? Or was it those who discarded the pseudo-intelligence, the ignorance of the ages and opened new paths for speculation and endeavor—founding the engineering of the present and the tomorrow. It was not the man of letters, the man of political science, the man of theology and philosophy, but the student of nature—the man of pure science. Unlike today, the scientist and engineer then, were one and the same—engineering is the child of the womb of science.

Engineering is defined as the "science of controlling the forces and utilizing the materials of nature for the benefit of man, and the art of organizing and directing human activities in connection therewith." The forerunners of the engineer of today did their part as engineers in turning the forces of nature to the use of man, thereby changing a world in which the winner was the man with brute strength and physical bravery which gave him the power to win in a hand to hand battle. It was a world in which all, even the fighters who secured the spoils and the rulers of these fighters, lived in comparative discomfort. It was a world in which the higher thoughts, aspirations, and the fundamental impulse to render unselfish service which are the essence of civilization, came to but very few. The mass of humanity was too heavily laden with hard labor, with real oppression from the classes above them, and with the effects of ignorance and superstition, to have any part in the crude civilizations which existed. The engineer prepared the path for the freedom of man from the baseness of the material world. His task is but started. By putting the forces of nature to man's use, the engineer makes only the more emphatic, the fundamentals of his profession; as the great American Engineer, the late H. L. Garitt clearly stated the destiny of engineering: "In the seeming conflict of ideals which is the source of confusion into which this

new liberated world seems to be driven headlong, one criterion is apparent. The community needs service first, regardless of who gets the profit, because its life depends upon the service it gets. All systems have their foundations in service, and so far as mankind is concerned there is no reason for their maintenance except for the services they can render."

Here is one of the guides for the future in engineering! The growing complexity of this future will be felt soon by the youth of today. These complexities will be reduced only after submitting the future affairs of man and government into the hands of those who are discharging their duties to the utmost of their abilities, the men of the engineering profession. The engineering profession is the only truly constructive body that exists in the chaos of today. The most urgent problem facing the engineer necessary of a solution almost immediately is the conservation of the natural resources of the nation—virgin forests are laid low, petroleum wells dried, ore and coal mines looted for their worth in an insatiate drive for profit to be turned into dormant wealth. The next step in civilization, the turning of the battle spirit of man into constructive channels leading to the great reservoir into which engineering is turning the flood waters of human energy is looming in the future. Great waves of human endeavor are soon to sweep the earth again and will be influenced mostly by the founder of these tides, the engineering profession.

To influence these endeavors so that they are not on false roads two fundamental changes must be brought about, one in education, the other in the profession proper. Both movements are under way and will gather momentum by the very thoughts they profess. Educators themselves have realized that under the present educational system geniuses happen but persons of low intelligence are produced. Ex-president Eliot of Harvard said that "a new blight is affecting education and engineering . . . its name is standardization . . . standardization has become a dangerous adversary of progress in both fields. The ideal education is to develop the utmost possible variety of individualism attainment and group attainment." Our educational policy is becoming pervaded with the principle that man is automaton. This promises to be one of the great problems of the future.

New criteria for the profession must be inaugurated so that the present overcrowding of the engineering profession is lessened. There are three groups in engineering, the professional engineer whose primary function lies in the planning and direction of the engineering problem, the technician skilled in the development of plans, and the artisan but for whose manual dexterity and experience the plans would never see completion. There is the great necessity of a criteria to differentiate the engineer from the technician and the artisan. The solution here is much simpler than that necessitated by the psychological aspect in the educational problem. The former will be done with a stroke of the pen; the latter with the minds of thinkers of tomorrow!



AUSTIN PURVES, Jr.

Director of School of Art

PRIOR to becoming Art Director at Cooper Union in July 1931, Austin Purves, Jr., enjoyed a varied experience in professional practice and teaching of the Fine Arts. After completing three years of art education, he was color superintendent for a decorative painting company for several months. Following that, he dropped professional work for a while and continued his education by himself, through studies undertaken in his own workshop, and in the execution of a litany book and other ecclesiastical work for a church in Philadelphia. Desiring to be a mural painter, he had an opportunity to go abroad to study fresco painting. He returned to this country in 1925 and recommenced his professional career in New York.

For a period of two years, he worked in collaboration with architects in the execution of various mural painting commissions; the most important being the decoration of the stair well to Mr. Otto Kahn's swimming pool in Long Island.

He had been interested in industrial design and on the completion of a painting of the Nativity for St. Paul's Church in Duluth, he became engaged in work for R. H. Macy & Company, organizing their department of design, and running it for two years. This undertaking failed in 1929, as it was deemed practically impossible for a large retail department store to maintain a designing office for its manufacturers. During that time, he had continued his contact with the architectural profession executing, now and then, small architectural decoration jobs.

At the termination of his work with R. H. Macy & Company, he went to Sweden for a short time to inspect their ancient and modern crafts. He returned to this country to carry out the commission of designing and executing the decorations for the Folger Shakespeare Memorial Library in Washington. This work was completed during the summer of July 1931.

Before coming to New York, he taught for two years in the Night School of the Pennsylvania Museum and School of Industrial Art. During the period preceding the call to Cooper Union, he taught painting for two years at the Yale School of Fine Arts, and composition for two years following, at the National Academy of Design; lecturing at the same time on the history of ornament.

Austin Purves was born in Philadelphia, December 31st, 1900. He graduated in 1918 from the Germantown Friends School, Philadelphia. He studied for two years at the Pennsylvania Academy of Fine Arts and one year at the Julien Academy in Paris. At a later date, he studied fresco painting at the American Conservatory in Fontainebleau, France.

He is now Treasurer of the National Society of Mural Painters and a member of the Architectural League of New York, the Coffee House and the Century Association.

His introduction of new and improved courses, and his fine understanding of student problems characterize Austin Purves, the able and popular Director of the Art Schools.

Art has a real place in life. Life is reality. Many people want to state this reality by means of some vehicle—literary, plastic or graphic. So many people wish to do this that they deserve the sort of training which will enable them to make a beautiful statement not only in a way satisfactory to them, but satisfactory to other people. The delight that people take in making beautiful or plastic statements need not necessarily be confined to the making of pictures, or pieces of sculpture, or houses, but is equally possible in the production of all sorts of objects for innumerable uses. When something becomes useful to many people and is produced as such, the production of it becomes an industry. If the production of this thing demands the imagination and the integrity, and the taste of a designer and craftsman, it is an Art.

It is wonderful to think that a person can make his own living producing the thing that he loves. There was a time when so much was being demanded by the public and produced by artists in architecture, painting and sculpture that a young person desiring to become an artist apprenticed himself to a workshop from which art productions emanated. In this workshop he did not study merely painting, or sculpture, or architecture. In apprenticing himself to a workshop, he devoted his early life, through his adolescence to his young manhood, in mastering in so far as he could, these three arts. His experience included many of the by-products of these arts on account of the diversity of the work that was carried on in the workshop.

In his twenties, he was a craftsman. He might be especially proficient in architecture, painting, or sculpture. However, the future and the work that was available to be done decided for him which of the three he could develop to the greatest extent, and it behooved him to continue to be a good craftsman. If he were a leader among craftsmen, he might also be an artist. That was a grand experience and a grand life, and an artist was an important person on account of what he knew and what he was able to produce.

Changes in the world have made the production of art less and less necessary, so that we find in the beginning of the Twentieth Century, a condition where the industry, and consequently its arts has hit rock bottom. It could not sink lower. At the beginning of the Twentieth Century a man who took it upon himself to be a painter, or a sculptor, had to do it for his own satisfaction; his financial success depending largely upon the interest of a museum, or the vagaries of an art dealer.

Many times, without an income provided by either of these sources, he suffered and was part of an honorable Twentieth Century tradition—that of the "starving artist." When as a young man he wanted to learn to paint, or to model, he had no art workshop to go to. No tradition of craftsmanship to apprentice himself to, as there was not enough work of artistic merit and content, demanded by the public, to make it possible for a workshop to exist. Consequently he had to go to an art school. There was no other place to study.

During the last twenty-five years, mural painting and architectural sculpture have risen from novelty almost to a common-place. This has been through the foresight of some of the more enlightened architects, painters and sculptors who felt not only a necessity for the permanent establishment of art, but realized that this permanent establishment could be accomplished through

collaborative work. The carrying out of an architectural sculpture job, or a mural painting job, has recalled somewhat the workshop days. The work becomes more business-like as the factor of time enters in, meeting with building programs. And the fact that this work is of a collaborative nature, a more harmonious understanding has been created among the three arts. This work necessitated the use of assistants. The assistants, however, instead of being drawn from younger men studying in art schools have for a long time been drawn from older men, not quite leaders in their profession, but men who knew enough of the practical side of the profession to be responsible to a chief designer.

Even now there are very few schools that turn out students equipped to do assistants on a sculpture job or a painting job. They have been exposed to the rarefied phases of art and not the practical, so that a foreign workman working on a large painting project is not an unfamiliar sight even now.

The embellishment of architecture by sculpture and by painting has become sufficiently established to demand of the schools, students adequately prepared for that type of work.

The field of the advertising of general merchandise on the one hand, and of advertising clothes on the other, has long been established; but for years it has been considered, that an artist who permitted himself to draw for either of these types of advertisement was debasing himself. As a price agreed upon by the advertisers was paid to the artist for a job lot of work done, the thing became known as "Commercial" art. But commercial art went right along despite the shock that it inflicted upon artists, and became successful enough to be properly termed advertising design, paying high prices for good work. These high prices were paid to a man who could do satisfactory work in a profession which really demanded his services. As one looks back over the field, one finds invariably that a high priced designer was at one time an artist or at one time wanted to be an artist. I am not at all sure that he did not remain an artist. I think he did.

The profession of architecture has been continuous, as our life and business have to be housed. It has had its ups and downs, and its training has gone through the various stages of practicality and culture; but it has continued and remains today a healthy art with generally adequate training. There are many men today designing buildings who are artists. Taking this for granted, the paragraphs following, in speaking of artists, deal only with those people desiring to paint, or to model.

It seems to be logical that the equipment of an American artist today should contain a working experience in drawing, modeling and designing, enabling him to make pictures or designs in either sculpture, or in color. He should know enough architecture to recognize the relative value of the buildings which surround him and to be aware of building materials and styles. He should be above all a competent craftsman, under the general department of painting, or of sculpture. He should be equipped with a sufficient amount of practical experience in techniques incidental to the main stream of his particular art, so that he will be proficient in producing objects of beauty and usefulness, which might be allied to painting, or allied to sculpture, in order to keep his head above water in the work to which he has dedicated the formative years of his life.

(Continued on page 285)



EDWARD A. MILLER
Supervisor, School of Architecture

A TRIBUTE

After 54 years of untiring zeal and devotion to his duties at Cooper Union, Mr. Edward A. Miller, the Supervisor of the Architectural Department will resign at the end of this term. His familiar figure, so much a part of the school life, will be greatly missed.

Mr. Miller, in his 54 years of active educational work has accomplished much more than the average educator. He has designed buildings, written several books, and served the city as Chief Engineer of the Park Department.

We could go on, eulogizing his colorful personality, but a few facts about his career will give a better picture of the man.

He was born 81 years ago in New York City. Originally he started out to study medicine but drew the line at cutting up cadavers, and turned to a more creative field, studying architecture and engineering. He attended Cooper Union and is the last remaining one of the four who graduated from the Science Course in 1874, receiving the degree of B.S. Forty years later, in 1914, the degree of C.E. was conferred on him.

Mr. Miller graduated at the time Cooper Union was still in its infancy, but already was nationally famous for its high scholastic standing. He became an instructor in the school, and his classes produced many famous architects and engineers. His books and his success in teaching are widely known.

We sincerely hope that his retirement brings him the peace and the rest that his many years of hard work have earned for him.

COMMITTEES OF THE FACULTY

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PROFESSOR ALBERT BALL

PROFESSOR HENRY C. ENDERS

PROFESSOR CARL C. BRIGHAM

MR. WARREN G. FINDLEY

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PROFESSOR NORMAN L. TOWLE

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MR. HENRY B. HOPE

PROFESSOR KARL HAUPTMAN

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PROFESSOR NORMAN L. TOWLE

PROFESSOR FRED H. MILLER

MR. HERBERT F. ROEMMELE

School of Art

AUSTIN PURVES, Jr., Chairman

ESMOND SHAW

GAETANO CECERE

MRS. WALLACE HARRISON

CHARLES GILBERT

DAVID HYMES

School of Architecture

AUSTIN PURVES, Jr., Chairman

EDWARD A. MILLER

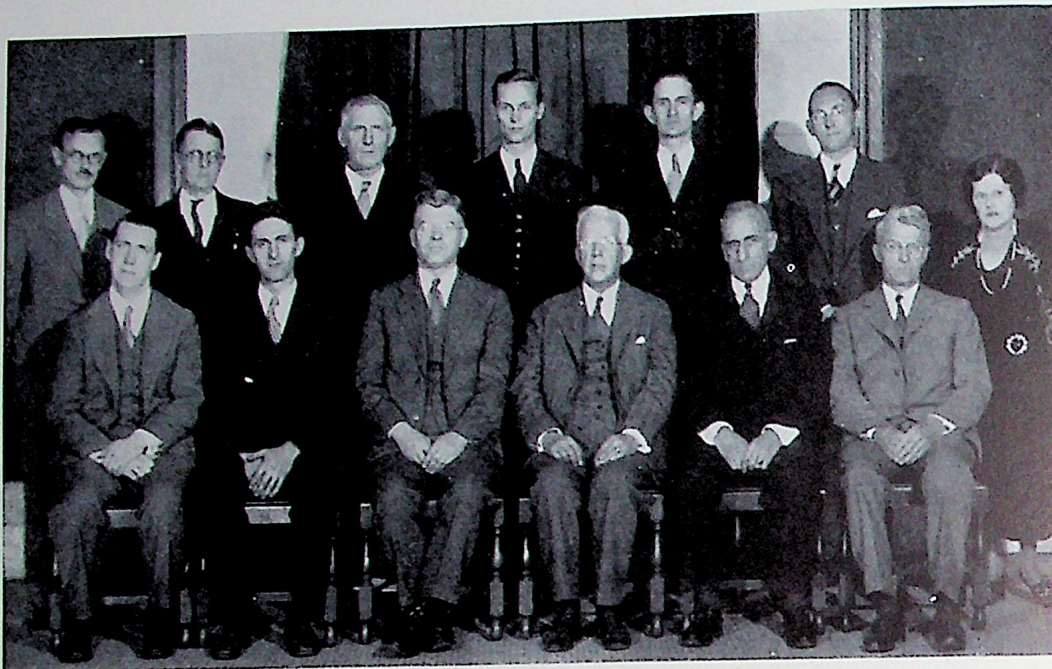
HAROLD M. HEATLEY

BRUCE RABENOLD

FRANCIS ROUDEBUSH

BEN KENNETH WYATT

THOMAS E. McMULLIN



*Standing—W. E. Brown, D. E. Endriss, G. Berg, G. Palo, J. P. O'Donnell, C. O. Roth, Miss Grady.
Seated—M. H. Van Buren, L. Perez, Prof. R. C. Brumfield, Prof. F. E. Foss, G. Morrison.
J. P. J. Williams*

DEPARTMENT OF CIVIL ENGINEERING

Professor

FREDERICK E. FOSS, A.M., Sc.D.

Phi Beta Kappa; Phi Kappa Phi; A.B., Bates College, 1883; A.M., Bates College, 1886; B.S., Massachusetts Institute of Technology, 1886; Sc.D., Bates College, 1908; Member of American Society of Civil Engineers, American Railway Engineering Association, American Society for Testing Materials, Society for the Promotion of Engineering Education.

Assistant Professor

RAY C. BRUMFIELD, B.S.

Tau Beta Pi; B.S., Purdue University, 1912; Member of American Society for Testing Materials, American Society for Steel Treating, Society for the Promotion of Engineering Education, Committee on Hardness Testing, A.S.S.T., Chairman Standardization Committee, A.D.T.A.

Instructors

WILLIAM E. BROWN, B.S.
GILBERT MORRISON, B.S., C.E.
JAMES P. O'DONNELL, M.S.

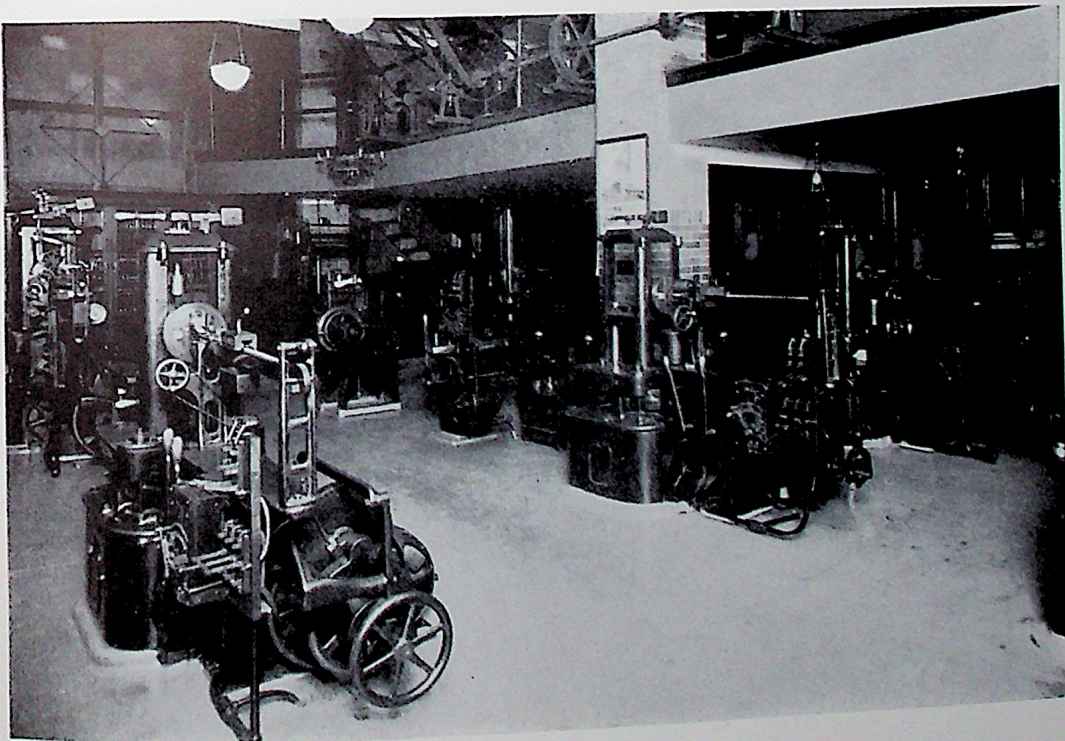
LAWRENCE PEREZ, B.S.
CHARLES O. ROTH, JR., B.S.
MILES H. VAN BUREN, B.S., C.E.
J. P. J. WILLIAMS, B.S., M.S., C.E.

Department of Civil Engineering

Although instruction in the fundamental subjects of the fields of Civil and Mechanical Engineering has been given ever since the Cooper Union first opened its doors, it is impossible to state definitely at what point in its history a Course in Civil Engineering, as we now know it, was established. For many years Professor George W. Plympton, who became Director of the Night School in 1880, also had the title of Professor of Applied Mechanics which he carried up to the time of his death in 1907. During these years he gave a course called Applied Mechanics which is described in his Annual Report of 1902 as "Strength of Materials, Bridge and Roof Construction, Voussoir Arches, Retaining Walls, Graphic Statics, Water Supply and Drainage." This course was required of all students.

About this time an optional course in surveying was offered and a transit and level were purchased. While it appears that in the year 1905 changes were effected in the Night Course which gave an opportunity for students to choose either a Civil Engineering or a Mechanical Engineering option, it was not until 1911 that the published list of graduates differentiated between the two courses. That year there were 50 graduates in Civil Engineering.

(continued on page 286)



MATERIALS TESTING LABORATORY



*Standing—H. Brown, C. Zeller, F. H. Tallman, E. Starr, G. Quinn, W. A. York.
Seated—H. Scheril, A. J. Fairburn, Miss Hertel, Prof. N. L. Towle, A. Goertz, H. C. Koenig.*

DEPARTMENT OF ELECTRICAL ENGINEERING

Professor

NORMAN L. TOWLE, B.S., E.E.

Tau Beta Pi; Sigma Xi; Sigma Alpha Epsilon; B.S., in Electrical Engineering, 1917; E.E., 1920, Worcester Polytechnic Institute; Graduate Study and Research, Westinghouse Electric and Manufacturing Co., 1917-1918; Engineer, Westinghouse Electric and Manufacturing Co., 1918-1919; Iowa State College, 1919-1920; in Charge of Electrical Laboratories, Professor of Electrical Engineering Department, 1932, Cooper Union; Member: American Institute of Electrical Engineers, Society for the Promotion of Engineering Education.

Instructors

A. J. B. FAIRBURN, B.S., A.M.
ALBERT GOERTZ, B.S., C.E.
HERMAN C. KOENIG, B.S., E.E.
GEORGE QUINN, E.E.

HENRY SCHERIL, B.S., E.E.
ERNEST STARR, E.E.
F. HOWARD TALLMAN, B.S.
CHARLES ZELLER

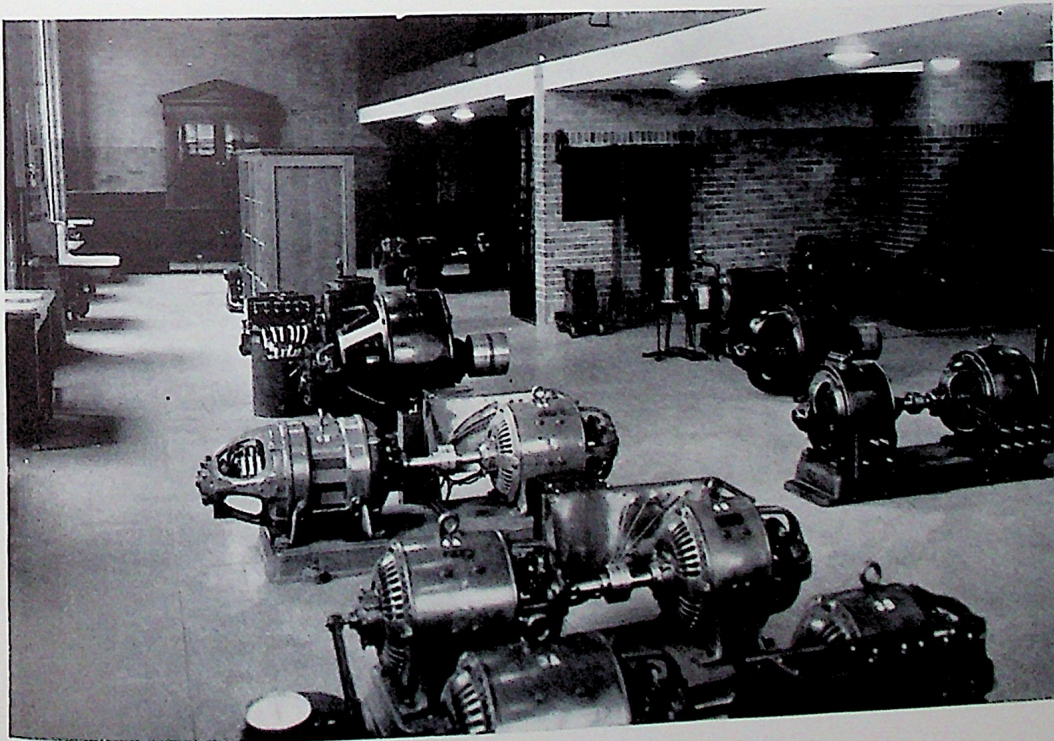
Department of Electrical Engineering

The Department of Electrical Engineering as it is known to students of The Cooper Union today, represents a development in personnel, curriculum and equipment over a period of nearly forty years.

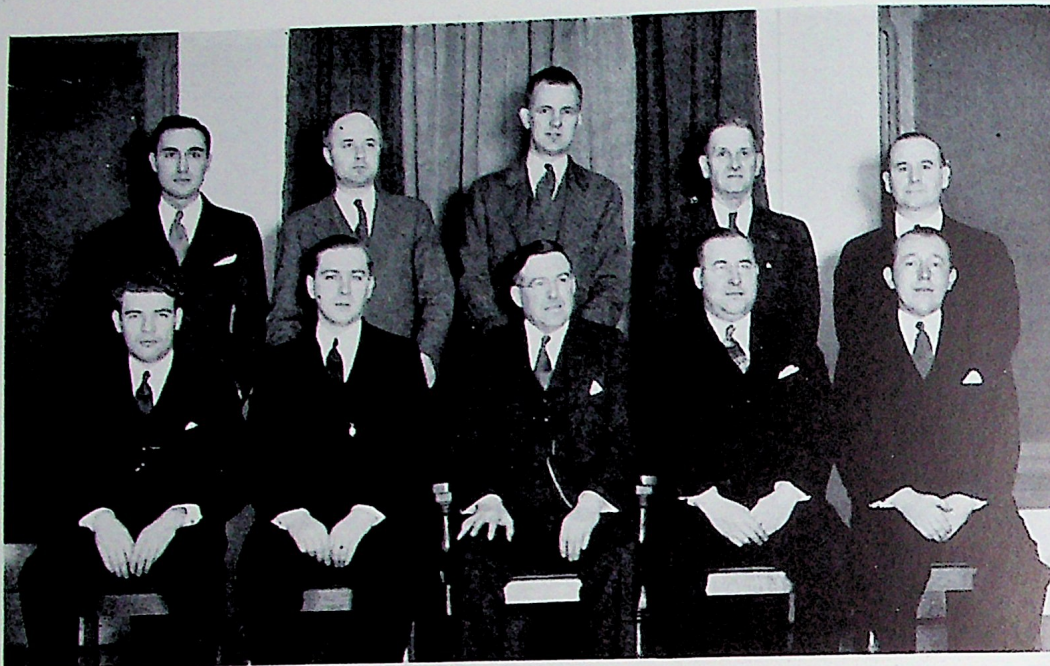
It was 1895 when Professor William Arnold Anthony, builder of the first American dynamo-electric machine, came to The Cooper Union to inaugurate a Department of Physics, Electrical, and Mechanical Engineering. Nine years later, Francis M. Hartmann, who had been an Instructor for five years, was appointed to an Assistant Professorship in the Department, and in 1906 he became Professor of Applied Electricity. Two years later, upon the death of Professor Anthony, Professor Hartmann became the head of the Department of Physics, Electrical and Mechanical Engineering.

During these years enormous development occurred in the application of electricity. Professor Anthony's name was conspicuous in the publications of the period, for he was an authority in the fields of electrical measurement and dynamo machinery, and was as well active in the field of thermodynamics. Under his direction laboratory facilities were developed on the first floor of the Foundation Building, until the Department became sorely pressed for space. About a year before the death of Professor Anthony, the Department engaged the services of Mr. Adolph Becker. His important contributions as

(continued on page 286)



ELECTRICAL MACHINES LABORATORY



*Standing—W. A. Vopat, H. Otten, Jr., W. T. Petersen, C. F. Pihlblad, C. A. Adams.
Seated—E. A. Salma, H. F. Roemmele, Prof. G. F. Bateman, W. O. Entenmann, O. G. Gerdin.*

DEPARTMENT OF MECHANICAL ENGINEERING

Professor

GEORGE F. BATEMAN, B.E., M.E.

B.S., Cooper Union Day School of Technical Science, 1907; M.E., School of Mines, Engineering and Chemistry, Columbia University, 1917; Fellow: American Association for the Advancement of Science; Member: American Society of Mechanical Engineers, Society for the Promotion of Engineering Education, The Newcomen Society, Library Board of the United Engineering Societies.

Instructors

WERNER O. ENTENMANN, B.S., M.E.

OLAF G. GERDIN, B.S.

HENRY OTTEN, JR., B.S., E.E.

WILLIAM T. PETERSEN, B.S.

HERBERT F. ROEMMELE, B.S.

EMANUEL A. SALMA, B.S.

WILLIAM A. VOPAT, B.S.

C. A. ADAMS, Lab. Asst.

C. F. PIHLBLAD, Mechanician

Department of Mechanical Engineering

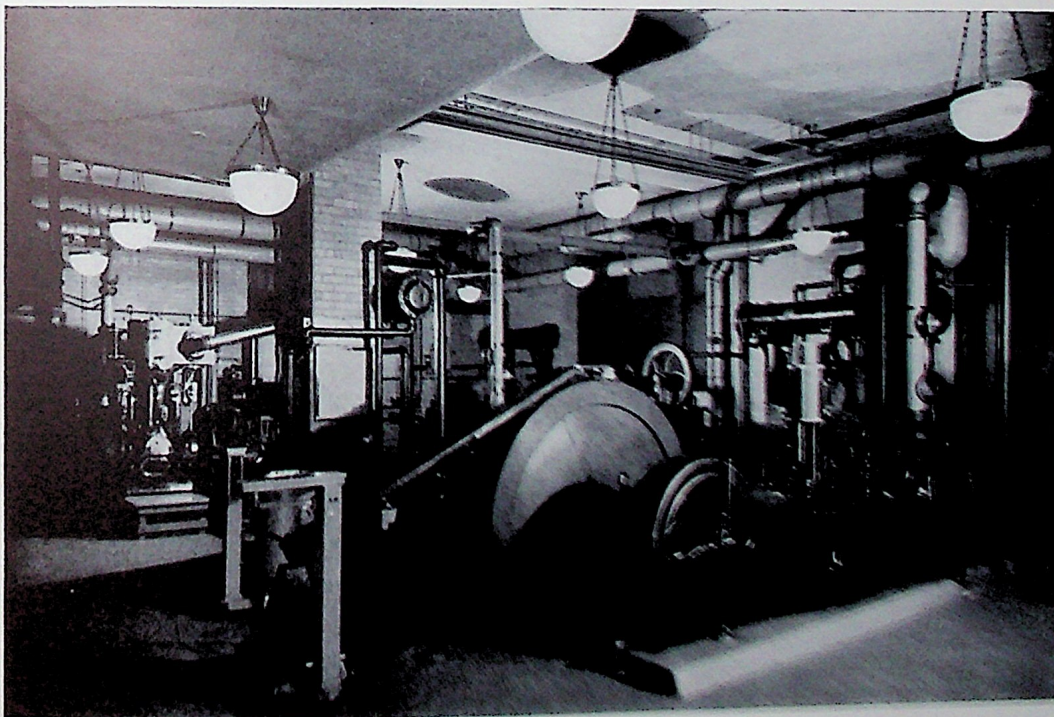
In 1895 when the Union first opened its doors to workers in industry, there were no branches of the profession now known as Electrical and Chemical Engineering. Consequently, the main course of instruction was planned to take care of those whose daily work was in the fields of Mechanical and Civil Engineering.

Profiting by the ineffectiveness of the unrestricted admission to individual classes during the term of 1859-60, the Trustees planned a coordinated course of five years' duration from which, after several modifications, has evolved the Civil and Mechanical Engineering Courses of our Night School of Engineering. It is interesting to note that the Trustees announced in 1860 that those who completed this five year course would receive upon graduation "the diploma of Mechanical Engineer."

Perhaps one of the earliest modifications of the course was made in 1879 when George W. Plympton became Director of the School. A man of unique and diversified attainment and great breadth of view, he brought to the engineering courses a degree of coordination which caused the effectiveness of the courses to be greatly increased.

In 1894 the Trustees were successful in obtaining the full time services of William Arnold Anthony, formerly Professor of Physics and Electrical Engineering at Cornell University. Some ten years previously, Anthony

(continued on page 288)



MECHANICAL ENGINEERING LABORATORY



Standing—H. J. Golle, A. L. Tarr, F. R. Forrester, H. B. Hope, R. J. F. Kunz, H. Hugg, G. S. Mueller, Miss Cronin.

Seated—E. Cannon, C. S. Sherman, Prof. J. Coull, Prof. A. B. Newman, Prof. H. C. Enders, R. Szymanowitz, N. Fallenberg.

DEPARTMENT OF CHEMICAL ENGINEERING

Professor

ALBERT B. NEWMAN, A.B., B.Ch.E., M.S., Ph.D.

Sigma Chi; Phi Lambda Upsilon; Sigma Xi; Iota Alpha; University of Michigan, A.B., 1910; B.Ch.E., 1911; M.S., 1926; Ph.D., 1928; Member of American Institute of Chemical Engineers, American Chemical Society, University of Michigan Club of New York, Fellow of American Association for the Advancement of Science; Committee on Chemical Engineering Education; Chairman, Committee on Standard System of Symbols and Nomenclature.

Assistant Professor

HENRY C. ENDERS, A.M., Ch.E.

Omega Delta Phi; B.C., Cooper Union, 1906; A.M., Columbia University, 1920; Ch.E., Cooper Union, 1922; Past President of Cooper Union Chemical Society; Past President of Cooper Union Alumni Association; Member of American Chemical Society; Vice-president of N. Y. State Society of Professional Engineers; Member of Committee of Law and Ethics; Member of Committee of Nominations; N. Y. Chapter of State Society of Professional Engineers; Fellow American Association for the Advancement of Science; Associate Member American Geographical Society; American Institute of Chemical Engineers.

Assistant Professor

JAMES COULL, B.Sc., A.M.

Sigma Xi; Phi Lambda Upsilon; University of Aberdeen, B.Sc., 1924; Yuill Traveling Scholar, Massachusetts Institute of Technology, 1924-5; Columbia University, A.M., 1929.

Instructors

FRANK R. FORRESTER, B.S.

HENRY B. HOPE, Ch.E.

HARVEY HUGG, B.S.

RAYMOND J. F. KUNZ, B.S.

CLARENCE S. SHERMAN, S.B., M.S., Ph.D.

RAYMOND SZYMANOWITZ, B.S.

ALLAN L. TARR, S.B.

EDWARD CANNON, Chem. Asst.

NICHOLAS FALLENBERG, Lab. Asst.

HENRY J. GOLLE, Lab. Asst.

Department of Chemical Engineering

An historical review of any phase of activity is one of evolution, and as far as human activities are concerned, may aptly be compared to the motion of a shuttle, moving ever forward and back but nevertheless always weaving a pattern, the interpretation of which we call history.

Previous to the year 1870 several fruitless efforts to start a working chemical laboratory in the Cooper Union had been made. A few tables had been constructed from old drawing tables and a balance purchased, the first to be sold by Becker in New York and which still remains among our treasures of the past, but no actually practical apparatus was provided for such a purpose.

In the year 1870, the Trustees requested Professor Stone to establish such a laboratory and gradually with the assistance of several graduates from the General Philosophy Course where chemistry was taught through lectures only, this newly attempted course in laboratory practice was developed. It was pioneer work accomplished with many sacrifices but always stimulated by the conceptions of the Founder, and by the year 1881 was found to be thoroughly established.

(continued on page 289)



CHEMISTRY LABORATORY



*Standing—H. Otten, Jr., H. Stemper, C. W. Miller, O. G. Gerdin, H. Halsey, A. J. La Fontaine,
Seated—R. A. Faralla, S. Matthews, Prof. K. Hauptman, Prof. A. Ball, J. C. Riedel, Prof. H. W
Merritt, W. E. Bossert.*

DEPARTMENT OF PHYSICS

Professor

ALBERT BALL, A.B.

Sigma Xi; A.B., Cornell University, 1901; Member: American Association for the Advancement of Science; Society for the Promotion of Engineering Education, American Physical Society; Associate Member, American Institute of Electrical Engineers. In Charge of Department of Physics, Cooper Union, 1912.

Assistant Professor

KARL HAUPTMAN, B.S.

1903—Graduated Cooper Union Day School of Technical Science with the first graduating class of the Day School; B.S., Cooper Union Night School of General Science, 1903; Engineering Department of New York Telephone Co., 1903-1904; Instructor, Physics and Electrical Measurements, Cooper Union Night School, 1904; Instructor of Physics, Cooper Union Day School of Technical Science, 1905; Assistant Professor of Physics, Cooper Union, 1924.

Assistant Professor

HAROLD W. MERRITT, B.S.

Sigma Tau Rho; Lambda Sigma Kappa; B.S., Cooper Union, 1921; Member: Society for the Promotion of Engineering Education, American Society of Mechanical Engineers, Society of Automotive Engineers; Instructor of Physics, Cooper Union, 1921; Assistant Professor of Physics, Cooper Union, 1932.

Instructors

WILLIAM E. BOSSERT, B.S.

R. W. BURNS, A.B., B.S.

A. P. CRAIG, JR.

RAOUL A. FARALLA, B.S.

HUGH HALSEY, A.B.

CARLYLE MILLER, B.S.

J. CHARLES RIEDEL, B.S., C.E.

WILLIAM H. SPAHN, B.S., E.E.

HERMAN STEMPEL, B.S.

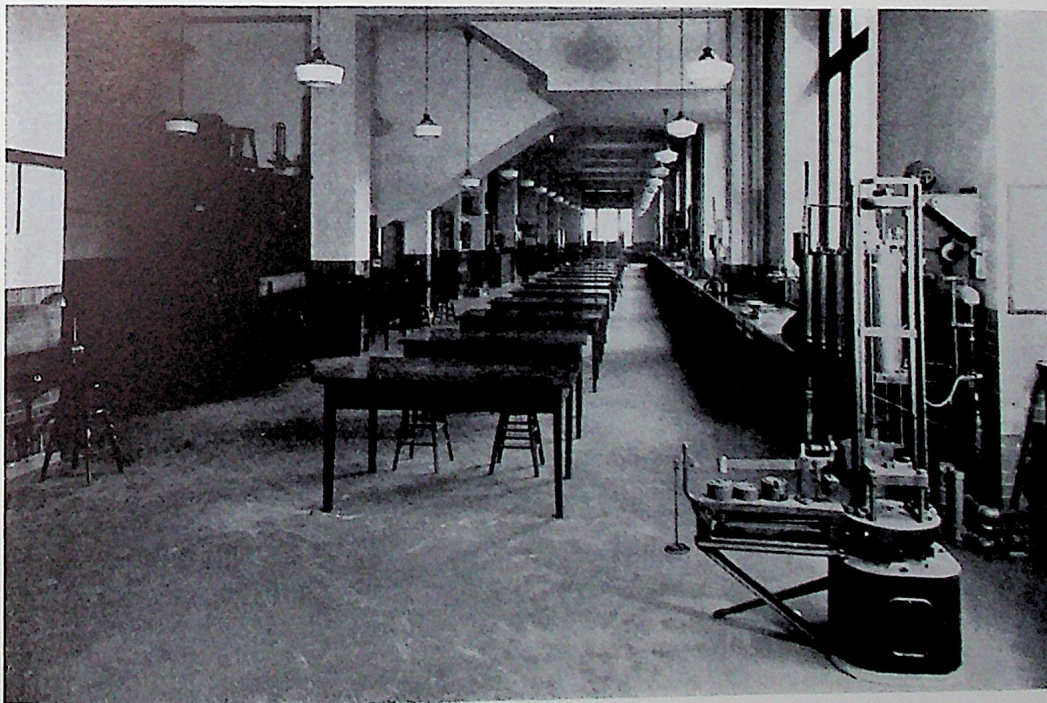
Department of Physics

The courses in Physics during the earlier years of the institution, under the directorship of Joseph Fox (1859-1870) and of his successor, Fitzgerald Tisdale (1870-1879) consisted for the most part of lectures and discussions under the name of "Natural Philosophy."

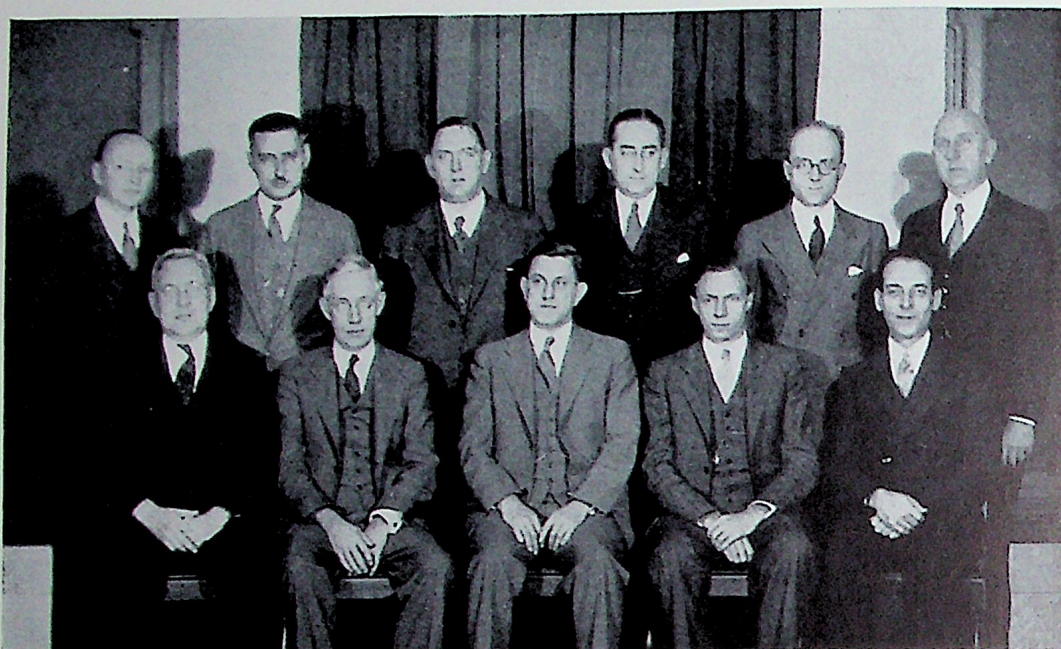
George Washington Plympton became director of the Night Schools in 1879 and in the Trustees' Report for that year he is also listed as "Professor of Philosophy, Mechanisms, and Astronomy," and in subsequent reports up to 1894 he is also listed as "Professor of Physical Science." In May of 1894, there were eighteen graduates from the five year course, which by this time had become a coordinated course of Mathematics and Science and led to a Bachelor of Science diploma.

In the report for 1895 there occurs this significant statement, "The Trustees have enlarged the scope of instruction in the night classes by the creation of a Professorship in Physics to which has been appointed William A. Anthony, Esq. recently professor in Cornell University." In the list of teachers for that year Anthony's name appears as "Professor of Physics and Electrical Measurements." Apparently he had no assistants. It is not until the report for 1900 in which appears the announcement of the foundation of the Day School and the enlargement of space for Physical Laboratory work

(continued on page 290)



PHYSICS LABORATORY



*Standing—F. J. McMackin, J. J. Tanzola, E. J. Larkin, S. B. Sheridan, A. H. Beiler, E. G. Taplin.
Seated—D. C. MacLean, Prof. W. J. Pickett, Prof. H. W. Reddick, Prof. F. H. Miller,
C. H. Lehmann.*

DEPARTMENT OF MATHEMATICS

Professor

H. W. REDDICK, A.M., Ph.D.

Phi Kappa Psi; Sigma Xi; A.B., Indiana University, 1904; A.M., University of Illinois, 1906; Ph.D., Columbia University, 1910; Professor of Mathematics in 1916; Member: American Mathematical Society, Mathematical Association of America.

Assistant Professor

WILLIAM J. PICKETT, B.S.

B.S., Teachers College, Columbia University, 1909; Assistant Professor of Mathematics, Cooper Union, 1924; Member of Mathematical Association of America.

Assistant Professor

FREDERIC H. MILLER, B.S., M.S., Ph.D.

B.S. in E.E., Cooper Union Institute of Technology, 1926; M.S., Cornell, 1927; Ph.D., Columbia, 1932; Member: American Mathematical Society, Mathematical Association of America.

Instructors

ALBERT H. BEILER, B.S.

EDWARD J. LARKIN, B.S.

CHARLES H. LEHMANN, B.S.

DONALD C. MacLEAN, A.B.

FRANK J. McMACKIN, Ph.D.

S. B. SHERIDAN, B.E.

JOSEPH J. TANZOLA, A.B., A.M.

E. G. TAPLIN, B.S., A.M.

Department of Mathematics

At the termination of the first year of the operation of The Cooper Union, 164 pupils attended the class in Mathematics, which met three evenings per week. The Department of Mathematics consisted of four instructors, and instruction was given in Algebra, Geometry and Trigonometry. A certificate of proficiency was granted at the close of the year's course to those passing satisfactorily.

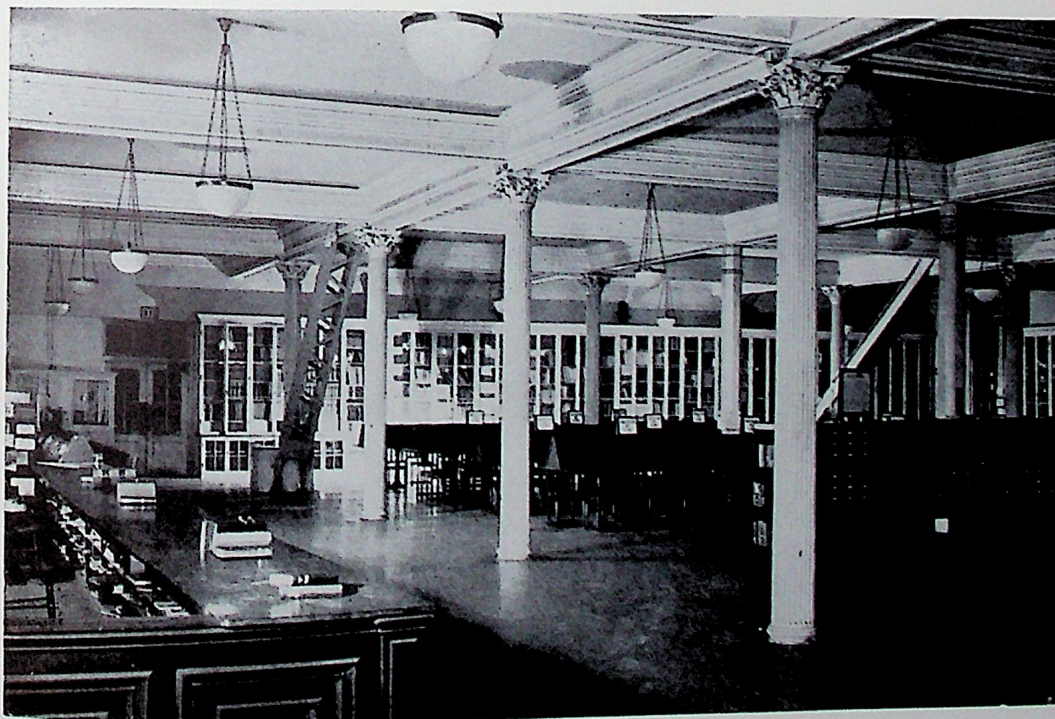
Of the 164 pupils in the course, 24 took the first final examination on June 7, 1860. The First Annual Report states:

"Four of these were examined in Trigonometry and the remainder (including two female pupils) in Algebra, comprising equations of the first degree, and Geometry, comprising rectilinear plane geometry. The committee concurred in reporting the result of the examination as very satisfactory."

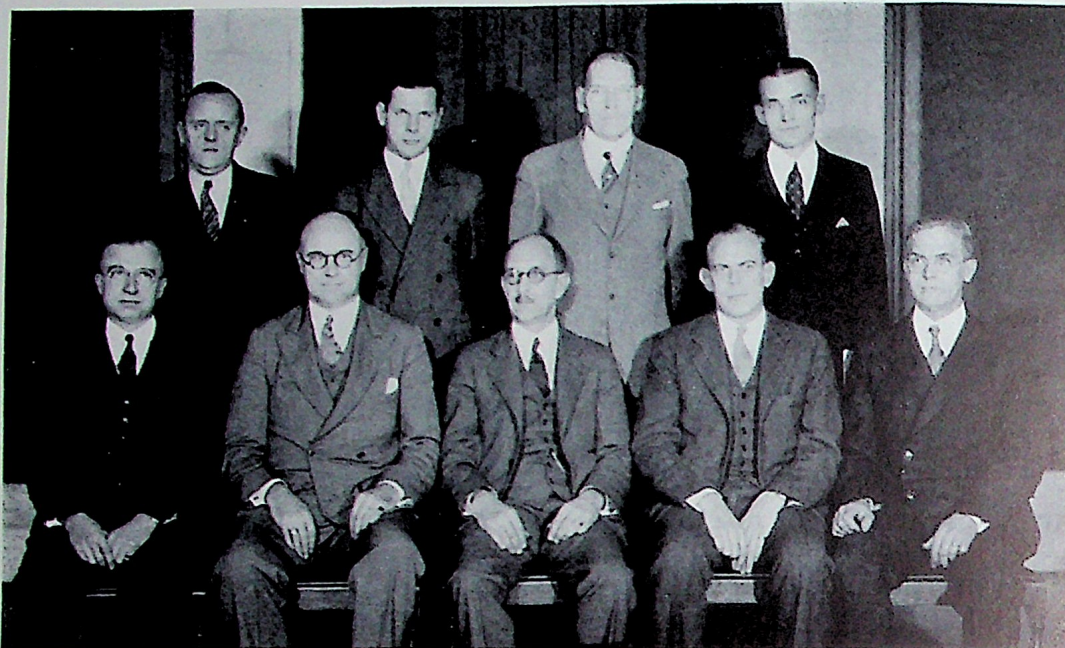
Certificates of merit were awarded to 21 pupils.

Ten years later the subjects of Analytic Geometry and Differential and Integral Calculus had been added to the curriculum, but it was not until 1907 that the subject of Differential Equations was introduced, in the fourth year of the Electrical Engineering Course. The following year Differential Equations was given for the first time in the Institute of Technology, which had been in operation since 1900.

(continued on page 291)



PUBLIC LIBRARY AND READING ROOM



*Standing—R. Salmonsén, K. E. Lofgren, J. J. Currey, G. A. Guerdan.
Seated—O. G. Puller, C. H. Young, Prof. C. Rossmassler, A. H. Church, J. W. Langguth.*

DEPARTMENT OF MACHINE DESIGN

Professor
CARL ROSSMASSLER, B.S.

B.S., Massachusetts Institute of Technology, 1901; Society of Mechanical Engineers, Society of Automotive Engineers, Engineers Club of Philadelphia.

Instructors

AUSTIN H. CHURCH, M.E.
JOHN J. CURREY, B.S., M.E.
GEORGE A. GUERDAN, B.S.
JOHN W. LANGGUTH, B.S., C.E.

KENNETH E. LOFGREN, B.S., M.S.
OTTO G. PULLER, B.S., M.E.
ROBERT SALMONSEN, B.S., M.E.
C. HIGBIE YOUNG

Department of Machine Design

Instruction in Mechanical Drawing at Cooper Union has existed since the founding of the Institution, as the By-Laws and Regulations state that,—“the (Science) courses of instruction shall always include—Mechanical Drawing.” The earliest records tell us that in the school year 1863-64 (the 5th academic year), there were enrolled 225 students in Mechanical Drawing, for whom there were two instructors.

From the earliest date, there seems to have been a differentiation of drawing work, in that this department carried on two distinct activities—one as an integral part of the Night Science schools, and the other as a distinct and separate occupational school for the making of professional draftsmen.

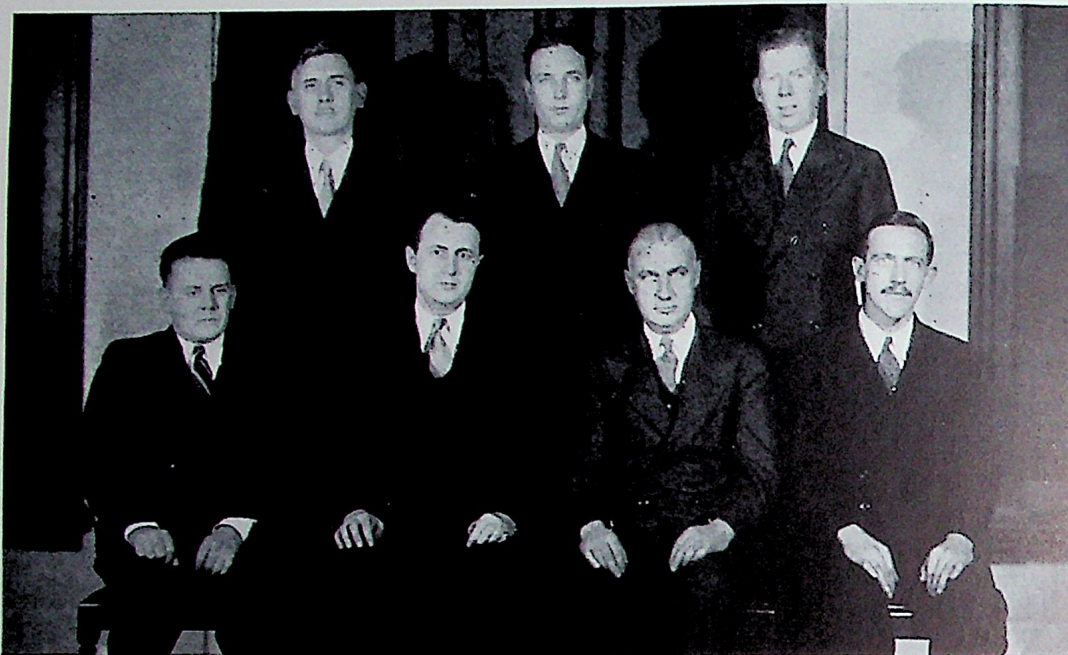
This latter offered a three year course, fitting the recipient for drafting positions, as distinguished from work of a broader engineering aspect. Although it was a strong course in practical work, it was discontinued after May 1925, as the need for such “practical” courses was deemed secondary to the greater need for complete engineering courses.

In the earlier years of the Science drawing courses, instruction seems to have been limited to Geometrical, Mechanical and Perspective drawing—at times including Descriptive Geometry. In those days the design of machines was largely a matter of intricate, elaborately sectioned and highly colored drawings, often of a decidedly artistic aspect.

(continued on page 292)



FACULTY LOUNGE



*Standing—R. W. Cumberland, F. C. Riedel, T. V. Garvey.
Seated—E. Mantz, W. G. Findley, Prof. C. C. Brigham, W. G. Valentine.*

NON-DEPARTMENTAL STAFF MEMBERS

Instructors

PROF. CARL C. BRIGHAM, Ph.D.	THOMAS V. GARVEY, B.B.A.
ROBERT W. CUMBERLAND, A.M.	ELMER MANTZ, A.B., Ph.D.
WARREN G. FINDLEY, A.M.	F. CARL RIEDEL, B.S., M.A.
WILBUR G. VALENTINE	

THE DEBATING CLASS

The Cooper Union has had classes in public speaking for over seventy years and no other department in the Institute has left a more permanent stamp on this city. Like a quiet pond into which a stone is dropped, its waves of influence have reached to the far shores. Peter Cooper, with his wisdom, experience and common sense knew the value of the spoken word. He himself had gained much of his education, especially the cultural part, by talking with the fine minds of his day. He gathered in his library poets and authors, and they talked of other poets and authors, of language, of ways of saying things, of the stirring quality in a single line of poetry or a masterly sentence of prose.

He took under his special care and interest The Cooper Union Debating Class for young men and many a time could be seen coming into the room on the arm of Professor Zachos, the Director of the class, smiling and nodding to the applauding young men who sprang to their feet to greet him. Old men who can recall one of those evenings, consider it a precious memory. That benign personality is kept alive in the speech classes by many students, with yearly tributes in orations and poems. Many homely speeches are made in simple language by beginners in this art of self-expression, but they are none the less welcome to us, when the great Founder is the subject.

In the Debating Class the student is given instruction in Oratory, Debate and Parliamentary Law, but even better than the constructive criticisms that he constantly receives, is the continuous practice of speaking on a platform before an audience. Self-consciousness and fear, the prime enemies of the young speaker, are overcome and in their place the student gains self-control, dignity, confidence and the pleasure of giving from brain and heart to others. In technique, for every art has its technique, he learns to train and use his voice in range and pitch. He works for a purer and more correct speech; a fuller vocabulary and an easy and agreeable bearing on the platform.

He learns to think more clearly and quickly and to formulate his thoughts in good expressive language. He opens the door of his closed self and takes the world by the hand. He must study and drill himself; he must have ideals and images within; he must regulate his mind; formulate his knowledge and

(Continued on page 292)



STUDENT READING ROOM



*Standing—V. Petrone, E. A. Acker, E. A. Miller, C. P. Colla, G. H. Ferrenz.
Seated—J. C. McGowan, C. D. Badgeley, B. K. Wyatt, B. Rabenold, R. S. Hutchins, A. L. Beineix, S. Entwistle.*

ARCHITECTURAL DEPARTMENT

Supervisor

EDWARD A. MILLER, B.S., C.E.

B.S., Cooper Union, 1874; C.E., Cooper Union, 1914; Chief Engineer of Park Department of New York City, 1898-1920; Member: American Institute of Park Executives; Municipal Engineers of the City of New York; General Science Alumni Federation; Honorary Member of Architectural Alumni.

Free Hand Drawing

FRANK MARTINELLI

JOHN C. MCGOWAN

Shades and Shadows and Perspective

C. DALE BADGELEY

ROBERT S. HUTCHINS

Architectural Drawing

EDWIN A. ACKER

HAROLD M. HEATLEY

ADRIEN L. BEINEIX

THOMAS E. McMULLIN

CASPER P. COLLA

VESPUCCI PETRONE

GEORGE H. FERRENZ

B. KENNETH WYATT

Architectural Design

BRUCE RABENOLD

FRANCIS W. ROUDEBUSH

Estimating

SAMUEL ENTWISTLE

History of Architecture

LEOPOLD ARNAUD

Librarians

FRIEDA KATZKI

EDWARD B. McCLENAHAN

Architectural Department

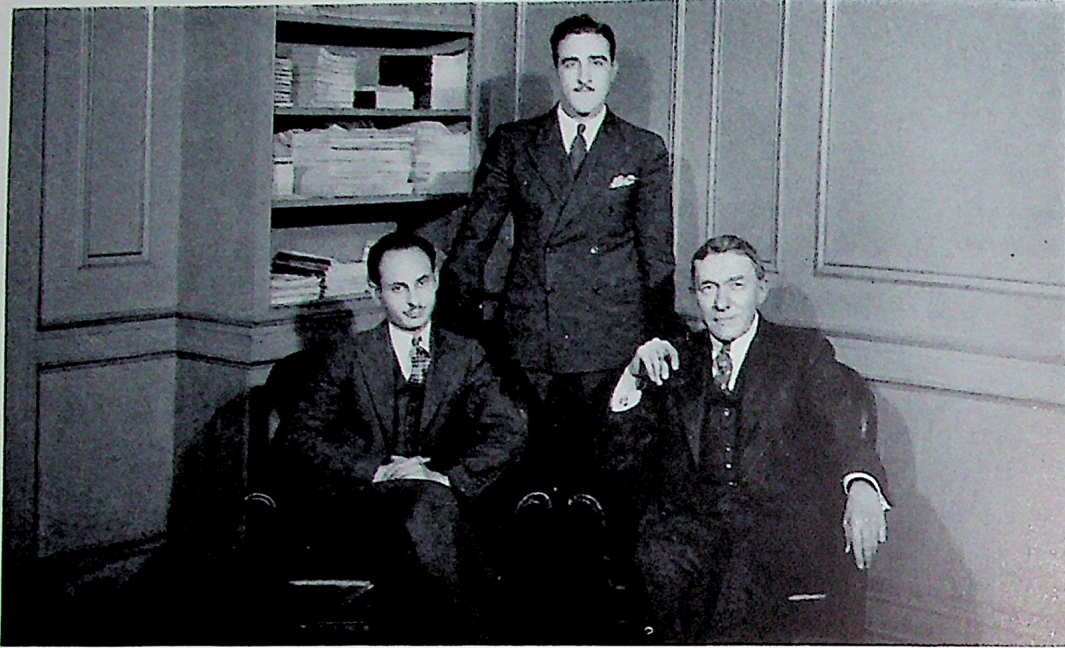
In the seventies, the entire Architectural Drawing Department was composed of two sections or classes, one in general building construction drawing, the other in the study of the Orders. Each numbered between twenty-five to thirty students and was housed on the, then, top floor of the institution. The construction section was composed of a few draftsmen, a majority of mechanics and a few unallied students. The Orders section was composed of artists, decorators, designers, etc. The work in this section was the study of the different Orders of Architecture and the application of same to designs. The founder, Mr. Cooper, was particularly interested in the work of the construction section and often requested that the students be asked their occupation and that the work assigned them be in keeping with the same, as this would make them more proficient in their calling and place them on a higher plane. I might state that this method has been followed to date in this department.

At the time referred to, above, the entire ground floor was rented to Wine-Keepers as was the greater part of the main floor. The Trustees gradually abolished these and converted the same space into class rooms, increasing the number of students to be admitted as well as the staff of instructors and the plan and scope of the work to be executed. This was in the eighties and nineties. Classes were shifted to various parts of the building to permit the work of alteration to proceed without interruption. We finally reached the main floor and mustered four sections in construction work and one in the study of the Orders. From this time on to the present we note nothing but progress. The four and a little later five construction sections were arranged as a four year course with the work schedule as follows: First year, general con-

(Continued on page 294)



ARCHITECTS' LIBRARY



D. Hymes, F. P. Piliero, H. A. Goldsmith

COMMERCIAL DESIGN—FURNITURE DESIGN

HENRY A. GOLDSMITH

DAVID HYMES

FRANK P. PILIERO

Commercial Design

The Commercial Design Course has been radically changed in the past two years to a very practical and beneficial course. The course deals with every commercial form of advertising art, including methods of production, printing, engraving, lithography, paper making. Many schools may not see the need for teaching students various processes of reproduction and mechanical details that concern advertising, but it is quite evident for a successful class to incorporate these items.

As for the actual art problems taught in this advertising class they are extremely valuable to the potential advertising artist. In short, it deals with layouts for magazines and newspapers, car-card posters, packaging, book jackets, booklets, cut out displays and lettering.

The instructions in each problem are given to the students in the same manner as they would be given to the professional artists. The students execute the problems in a professional and practical fashion bearing in mind all the mechanical limitations, in order that the art work can be used commercially. In other words many problems could be sold because of their artistic and practical value.

Furniture Design

While this is called the Furniture Design Class, the instructions given do not stop at furniture design, but include the designing of interiors suitable to receive good furniture. After having passed the necessary examinations required, the student introduces himself to his instructor who will inquire of him what his aim is in entering the class. If he desires to specialize in Furniture he will be allowed to concentrate entirely on it, beginning with scale drawing drawings suitable for a Cabinet-Maker and Carver to use for the production of the piece of Furniture as shown on the drawing. If the student is perhaps a junior cabinet-maker or carver, who wishes to concentrate on the full size working details, he may do so.

A student, after having produced good results at furniture designing may take further instructions for the background of furniture: namely, the designing of a good room in any historic period with the furniture to harmonize. This means also designing a room in perspective, and the rendering of same in pencil, ink or color. The designing of the interior also includes the instruction in interior architecture, draperies, carpets and rugs, iron work, tapestries and stained glass and everything pertaining to interiors; except murals which are a specialty and instructions for these can be had in some of the other classes.



CLASS IN COMMERCIAL DESIGN



Standing—E. Shaw, C. Gilbert, L. Daniel.

Seated—P. Feeley, J. Joseph, B. Thomas.

FREE HAND DRAWING

LEWIS DANIEL

PAUL FEELEY

CHARLES GILBERT

WAYLANDE GREGORY

JULIUS JOSEPH

ESMOND SHAW

BYRON THOMAS

Free Hand Drawing and Modeling

The First Year Drawing and Modeling Department was established for the purpose of preparing new students for their entrance into any one of the Four Year Courses which comprise the Drawing and Modeling Department in the Night Art School. In this course the student is taught the fundamental principle of drawing and design.

For two evenings a week, the student draws from the living model, where action, construction, proportion and character of the figure are stressed. The following two weeks, two evenings a week, the student models in plaster, objects and compositions involving the human figure. This alternating schedule of drawing and modeling continues throughout the year.

Creative Design: This study of design has direct bearing upon the composition of flat surfaces in drawing, painting and sculpture. The work includes the fundamental principles of spatial division by means of line, form and color.

Pictorial Design: While this study involves the human figure and is a necessary basis for general design, it is considered separate from the design course mentioned heretofore. Attention is directed to the behavior of human beings so that the student may be able to render this behavior in pictorial form.

Upon satisfactorily completing the requirements of this first-year preparation the student is permitted, on the advice of his instructor to select and enter one of the following courses—**Pictorial Design:** Drawing and painting the human figure, and making pictures not necessarily intended for general business purposes.

Advertising Design: Drawing and painting the human figure, and making designs for general advertising purposes.

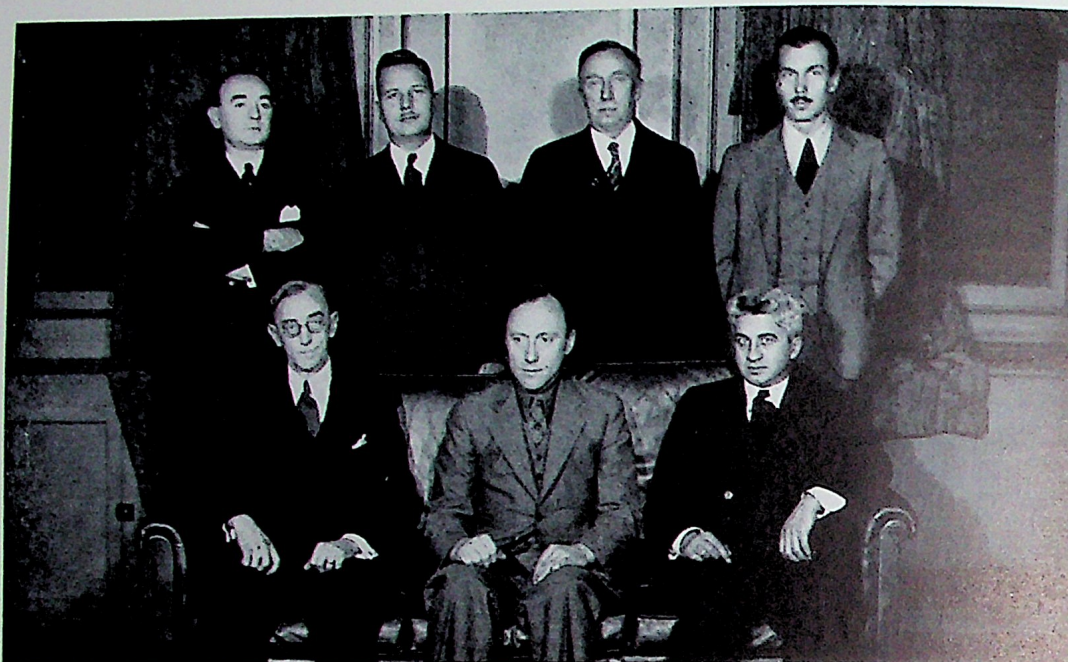
Fashion Illustration: Drawing and painting the human figure, and making designs for fashion advertising.

Figure Modeling: Modeling the human figure and making plastic compositions involving the human figure.

Ornamental Modeling: Modeling of architectural and other industrial ornament.



CLASS IN FREE HAND DRAWING



Standing—A. Shulkin, D. R. Hansen, W. E. B. Starkweather, C. Finley

Seated—H. D. Ramsdell, W. Harrison, C. Ciampaglia.

PICTORIAL DESIGN

CARLO CIAMPAGLIA

CLEMENS FINLEY

DOUGLAS R. HANSEN

MRS. WALLACE HARRISON

WALLACE HARRISON

H. D. RAMSDELL

ANATOL SHULKIN

W. E. B. STARKWEATHER

Pictorial Design

All the great recent movements in art which have startled and shocked so many people, but which have deeply interested every one, have had one common characteristic—they have been movements toward a return to design. As such they have been profoundly valuable.

The reaction against the school of pure realism, presented with prodigious pyrotechnic technique, which flourished at the close of the last century was inevitable. Such a reaction was presaged long ago by discerning critics. S. Reinack of the Institute of France, one of the leading critics of the world stated in his famous handbook "Apollo" that he thought the future of art would not be realistic, that photography had made reality commonplace.

In the modernization of art schools which has been taking place throughout this country the essential feature has been a new emphasis upon design. The old style art schools were hardly more than schools of drawing and painting. Too often students in such institutions finished their courses and

were thrown out upon the world having gained little else than a knowledge of how to copy models.

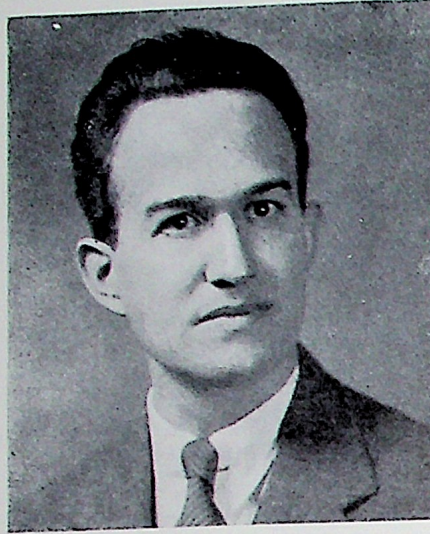
In Cooper Union today, pictorial compositions and designs of many other sorts are required of the students. The results of this emphasis upon the basic importance of design have been profoundly interesting, both to the faculty and the student body. The student body, which in Cooper Union is an extremely varied group, containing members of every race and creed, and with the American born students, natives of every great nation of the world, has taken with enthusiasm to these design problems; rich in talent and energy they have welcomed this opportunity for individual self-expression.

The range of these talents is extraordinary and thought suggestive. One finds many students devoted to character illustration subjects; they enjoy making compositions on such themes as Union Square or the barber shop. Nearby may be a student with an accomplished sophisticated style making sketches somewhat of the type used in "The New Yorker" showing elongated figures in speakeasy environments. Then there are many students interested in the extremely modernistic schools, often founding their abstractions largely upon the forms of machinery and making use of the black and silver color schemes that machinery has given to modern art.

It is pleasant to know that the scope of the school is sufficiently liberal to permit the growth of these robust young talents and the faculty varied enough in its personnel to insure a sympathetic understanding of the students.



CLASS IN PICTORIAL DESIGN



G. Cecere

SCULPTURE—ORNAMENTAL MODELING—FASHION ILLUSTRATION

Sculpture and Ornamental Modeling

For many years, the sculpture class working from the living model, and the ornamental modeling class working largely from plaster casts of classic design, have been separately regarded. In many cases, students completing their work in the ornamental modeling class, qualified for advanced study in the sculpture class. Recently, the work in both classes has been developed to the extent that men working in the sculpture class have added regular composition to their life modeling work. Most of the composition is in the form of models prepared for the Beaux-Arts sculpture competitions.

This year the ornamental modeling class has changed its character to the extent that there is much less copying of classical models and a real attempt is being made to have the students work out creative problems in decorative sculpture, with the idea of developing finally into an effort to do architectural modeling. It is planned eventually for both classes to be under the supervision of one man, where students may work from the figure and have shop practice in preparing full scale models for architectural purposes.

With such an experience behind him, the student is more readily prepared to undertake problems in sculptural design for other industrial purposes such as glassware and ceramic sculpture. It is to be hoped that as the course grows in richness, through the talent displayed by its students, physical equipment may be added to the present equipment to permit the students more varied opportunities for specialization.

Fashion Illustration

Best fashion artists, are artists in the full significance of the term. To this end, fashion students are required to study the nude and master the fundamentals of good drawing in conjunction with the work in the fashion class. Here, the objective is drawing smart clothes on equally smart women.

Because intelligent representation is the result of facts observed and experienced, rather than those copied or theorized about, a living model smartly outfitted is posed for the students to sketch and study. Needless to say this model is the embodiment of fashion ideals. Problems are worked out in various methods and media. Individualism in a student's work is enthusiastically fostered in the belief that therein lies his greatest asset. The changing commercial market demand for types and styles in fashion drawings is kept before the student.



CLASS IN SCULPTURE



Mr. E. L. Rehm, Secretary, Miss D. Murray, Miss B. Carbon

THE OFFICE OF THE SECRETARY

BUSINESS ADMINISTRATION

At the first meeting of the Trustees of The Cooper Union held on August 24, 1859, there was elected a President, Peter Cooper; a Treasurer, Wilson G. Hunt, and a Secretary, Abram S. Hewitt.

In the code of By-Laws which was adopted at the same meeting, the duties of these respective officers were defined in great detail. Chapter VII says in part, that the Secretary "shall have his office in the Union Building, that he shall have the general oversight of the various departments of the Union, and manage its scholastic operations; be the organ of communication with the community; make quarterly reports to the Board of the progress of the various departments of instruction; and that he shall assist in the selection and engaging of lecturers and instructors; and appliances of instruction and improvement; in making the courses of instruction, and in making the rules and regulations for the different departments."

And so we find Abram S. Hewitt, the first Secretary, for a period of more than 43 years—from 1859 until his death in 1903—practically the General Superintendent of the Institution, supervising with great capacity and untiring devotion its work and affairs and carrying into effect plans for the extension of its usefulness.

Toward the end of his administration the Institution had become more departmentalized, and some of the duties which he had assumed with the help of a curator and an assistant secretary were gradually taken over by Director George W. Plympton.

During the term of R. Fulton Cutting, the next Secretary, who served from 1903 until 1915, when he became President, the day and night Schools of Engineering and the Art Schools were well organized and no change in administration was made until the death of Professor Plympton in 1907 when Professor Charles R. Richards was appointed Director. During this period the budget system was developed, giving an opportunity for departmental heads to express their recommendations and for the Trustees to apportion the funds in the light of the greatest use to the whole Institution.

The Union has been fortunate in retaining the devotion of the members of the Cooper family. In 1915, a member of the fourth generation, Peter Cooper Bryce—great grandson of the Founder, was elected the first Secretary not a member of the Board of Trustees. He served loyally until 1924 when ill health compelled him to reside in California.

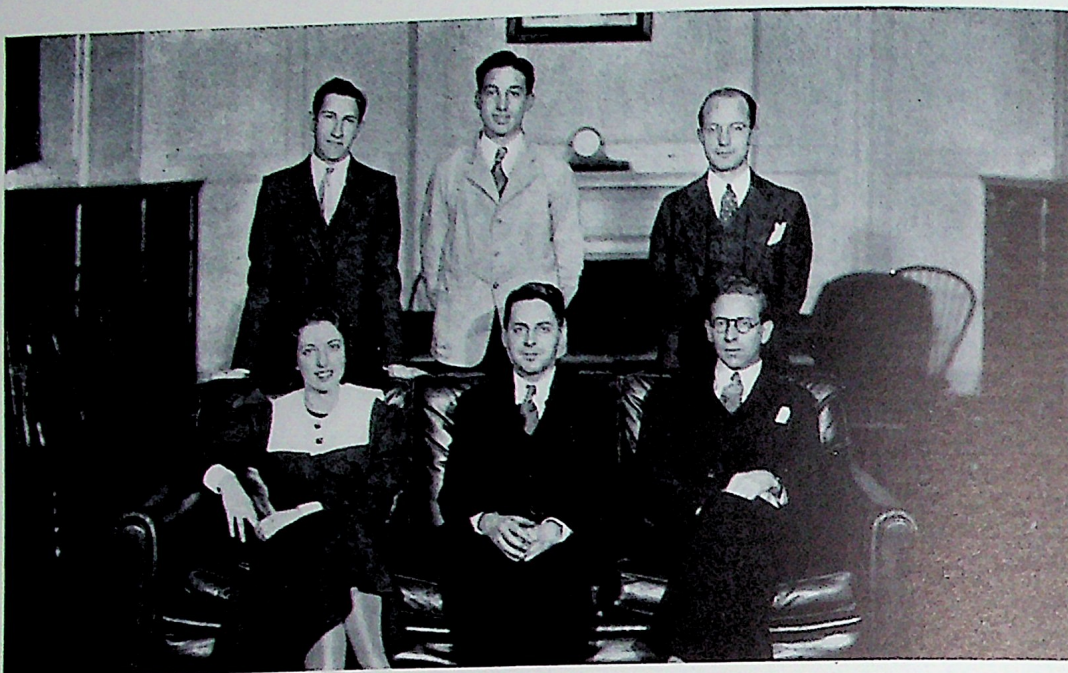
Charles W. Gould, who was elected a Trustee in 1915, became the next Secretary and held the office from 1924 to 1926. He will be remembered for his interest in the subject of education and the application of scientific principles to tuition, and for devoting his scholarly ability to the promotion of higher standards of efficiency in Cooper Union's pursuit of "the Advancement of Science and Art."

The present Secretary, Edward L. Rehm, came to the Institution in 1899 as an employee and is a graduate of the General Science Course. He became Assistant Secretary in 1918 and held that position until 1926 when he was elected Secretary. The present organization of the Institution places the charge of the Engineering Schools in the Dean, of the Art Schools in the Art Director, and of the business administration, accounting, budget making, publicity and library administration in the Secretary. In addition he is the connecting link between the Trustees and all departments.



Miss G. O'Riordan, Miss M. S. Wolf, Registrar, Student Inquirer, Miss G. Morrissey.

THE OFFICE OF THE REGISTRAR



*Standing—W. Walenta, T. Zito, J. S. Hutchison, Jr.
Seated—Miss M. Hausamann, J. B. Howlett, Librarian, C. M. Moore.*

THE LIBRARY AND READING ROOM

One of Peter Cooper's especial delights was the immense free reading room on the third floor with its average attendance of over 1500 persons daily. He was always interested in books of the highest order. Owing to many and pressing activities, his time for reading was short; nevertheless, the books he did read were re-read and were marked and marked again by him. It had been almost his first care in creating the Union to provide a suitable library and reading room to be free to the public. In the selection of books and periodicals, he did not undervalue the taste and intelligence of his readers. Although he was addressing himself to those who were presumably without early advantages, he provided from the limited means at his disposal a collection of high-class magazines and papers. The task of selection was entrusted to his son-in-law Abram S. Hewitt, a man of genuine literary taste and the assortment that he chose included the principal papers of the world together with many of the best-known periodicals printed here and abroad. The collection of books, although very small in the beginning has grown to almost 70,000 and includes technical works relating to almost every craft and profession; biography and travel; standard and current fiction. The library also contains a very valuable collection of the patent reports of the United States, dating back to the inception of the United States Patent Office. These patent reports are very valuable, containing full and complete drawings of all patents issued.

Classes

PETER COOPER, EDUCATOR



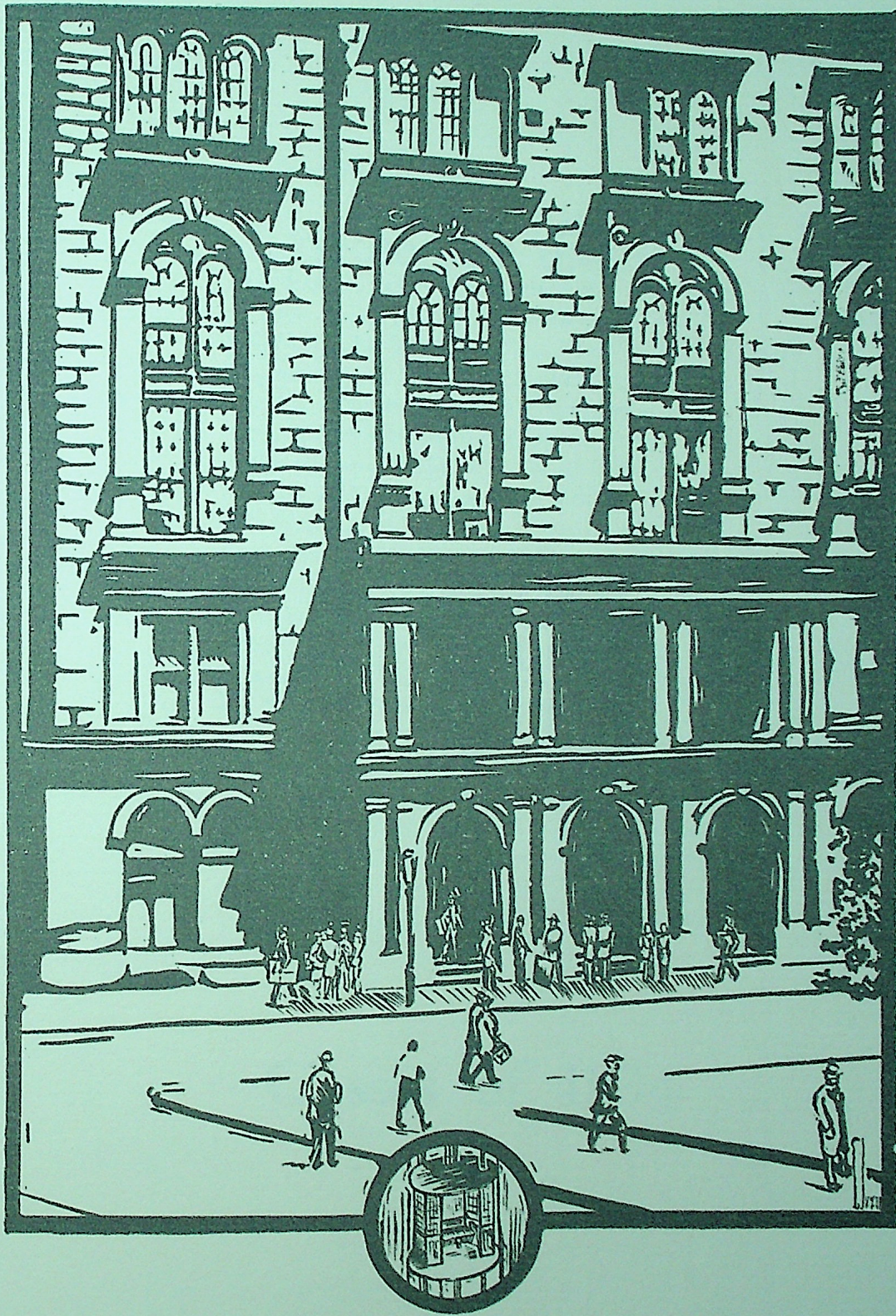
I *T was not until the building was completed that Peter Cooper began to work out the details of his educational plan. The classes which he wished to reach were the poorer mechanics and laboring men. He had wisely determined early in the development of his plans that it was imperative for the people whom he wished to aid, that they be able to earn their living in the daytime. There was one fallacy in Cooper's original plans. He thought that all men were like himself. He took it for granted that young laborers would rush to the opportunity to utilize their spare time for mental uplift. For this reason many of the educator's earlier, more idealistic plans were discarded or revised for more practical ideas.*

Cooper wished to provide for recreation and entertainment as well as study in his night school. In his original plan he intended to have a so-called "museum and cosmorama," like those popular at that time, containing curious objects, freaks, pictures of interesting places, etc., for enlightenment and amusement. He included also in his early suggestions, a roof garden on top of the building where on pleasant evenings the students might gather for conversation. The educator also planned to set aside certain rooms for discussion. He believed that people of the same trade would gather together for the exchange of ideas and would gain knowledge in this manner.

In planning the roof garden, Peter Cooper's inventive genius had given birth to an idea not developed until a half-century later—the utilization of roofs to give to all classes in a growing city free access to the healthy air and the sky.

When Peter Cooper took counsel with experienced advisers as to the final arrangements of his plans, he saw many elements of his youthful vision melt away in the final organization of the Union. The name, "The Cooper Union for the Advancement of Science and Art," epitomized this change. Despite changes, his primary purpose was unvarying. He came to see, however, that systematic education would be of greater value than digressive discussion or mere amusement.

Accordingly, the great free reading room was put in place of the proposed museum; the conversation halls and the cosmorama became lecture halls, classrooms and laboratories; and the roof remained merely the top of the building.





THE SCHOOLS OF COOPER UNION

The Cooper Union contains the following schools: Institute of Technology, Day Art School, Night School of Art, Night School of Engineering, and Night School of Architecture. The Free Night School of Engineering is one of the oldest schools in the Union, dating back to the opening of the Institute in 1859. It was the first night school in New York.

The Institute of Technology has intensive four year courses leading to degrees in the four fields of engineering.

The Day School of Art was until this year exclusively for women. In establishing this school Peter Cooper was as usual far ahead of his time, in his plans for aiding women. This year the school was enlarged to include men in its student body.

The Night Art School has also constituted an important element in the work of Cooper Union. In addition to fundamental courses in drawing and modeling, it includes today courses in the practical fields of applied design.

Classes of 1934

THE CLASSES OF NINETEEN THIRTY-FOUR

CHEMICAL ENGINEERING

RAYMOND F. MORAN	President
ARTHUR O. PLOETZ	Vice-president
JOHN DONATO	Secretary
ARTHUR S. ROMAN	Treasurer

CIVIL ENGINEERING

ANDREW J. STUBLER	President
JULIUS FRIEDMAN	Vice-president
ARTHUR A. WECHSLER	Secretary
HARRY HALBREICH	Treasurer

ELECTRICAL ENGINEERING

MARCEL G. GOAZEMPIS	President
MILTON D. CHRISMAN	Vice-president
CESAR A. TOLIVAR	Secretary
ANTON J. WILLE	Treasurer

MECHANICAL ENGINEERING

HERMAN L. SCHICK	President
JOHN H. PETERSEN	Vice-president
ARTHUR WEBER	Secretary
FRANCIS H. ALEXANDER	Treasurer

INSTITUTE OF TECHNOLOGY

MOE A. RUBINSKY	President
WILLIAM C. STEVENS	Vice-president
PAUL H. GIOVANELLO	Secretary
RALPH TOROP	Treasurer

ARCHITECTURE

ELIAS H. REIF	President
FRANK W. BROWN	Vice-president
MISS REVA D. SEGALL	Secretary
FRANK TESSITORE	Treasurer

SCULPTURE AND ORNAMENTAL MODELING

PETER J. McQUADE	President
WILLIAM P. BALABAN	Vice-president
FIORAVANTE F. COLISTA	Secretary
BEN LEWENSOHN	Treasurer

PICTORIAL DESIGN

GEORGE A. JOCHER	President
RICHARD ROSE	Vice-president
ANGELO M. De BENEDETTO	Secretary
ALBERT A. SHAW, Jr.	Treasurer

FASHION ILLUSTRATION

HELEN LEMCHEN	President
SHIRLEY MERZON	Vice-president
CATHERINE T. CARNEY	Secretary
CLAIRE H. TOBEY	Treasurer

ADVERTISING DESIGN

ROSE LEIBOWITZ	President
LUCY CICCARELLI	Vice-president
ELIZABETH R. SWEETEN	Secretary
HYMAN H. STEINBERG	Treasurer

SCHOOLS OF ENGINEERING

MAX ABRAMSON, B.S., "Maxie,"
Civil Engineering.

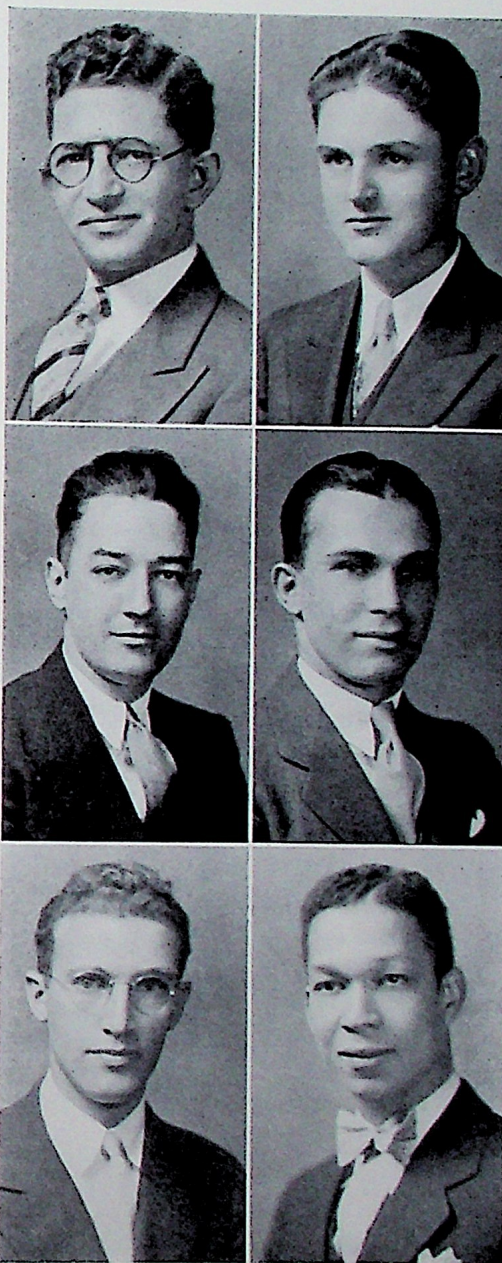
CLIFFORD F. ABT,
B.S., "Cliff," Electrical Engineering,
Tech, Stuyvesant High School;
A.I.E.E., Math Club.

FRANCIS H. ALEXANDER, B.S.,
"Frank," ΦΣΩ, Mechanical Engineer-
ing, La Salle Academy, Brooklyn
Evening High School, New Lots
Evening High School.

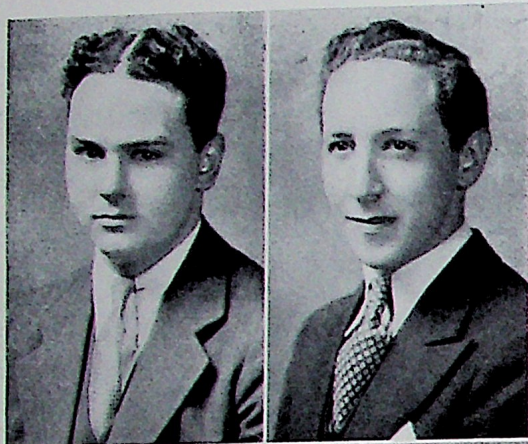
GARFIELD BARDES, Jr.,
B.S., "Garry," Mechanical Engineer-
ing, Erasmus Hall Evening High
School; Class Pres. '29, '30, Annual
Com. '30, Treas. C.U.N.E.C. '30.

ARTHUR J. BOLLINGER, B.S.,
"Bolly," Electrical Engineering,
Tech, Point Pleasant Beach High
School; Math Club, A.I.E.E.

FITZGERALD BRAMWELL,
B.S., "Fitz," Chemical Engineering,
Tech; Boys' High School; Math
Club, A.I.Ch.E.

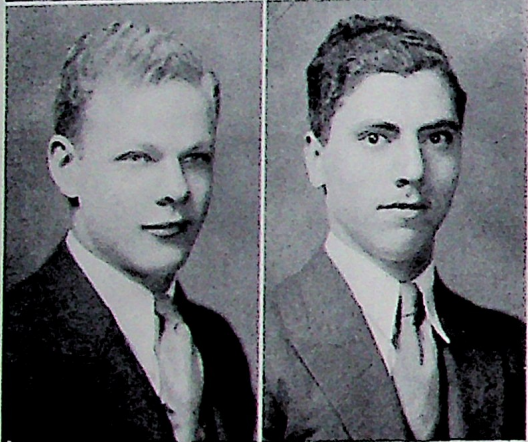


"I have always given a friendly



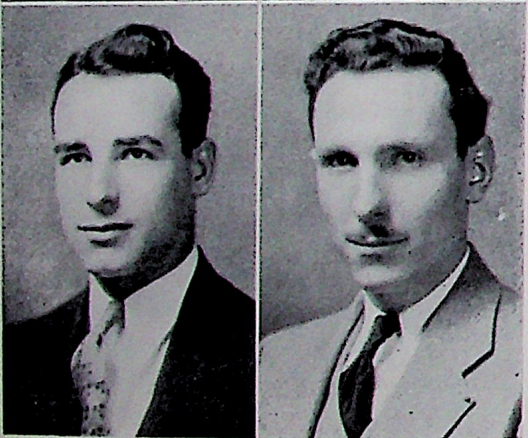
ARTHUR G. COFFIN, B.S.,
"Artie," Electrical Engineering,
 $\Omega\Delta\Phi$, Erasmus Hall High School;
Class Vice-pres. '33.

MONROE H. COHEN,
B.S., "Mony Quinn," Electrical En-
gineering, Tech, Eastside High
School; Math Club, Lunch Club,
Vice-pres. A.I.E.E., C.U.A.A.



JAMES CONSTABLE, B.S., "Jim,"
 $\Sigma\Delta\Pi$, Electrical Engineering; Rich-
mond Hill High School, Class Treas.
'30, Publicity Mgr. Cable '33, Ex-
Post Facto '33.

ANTHONY DE BIASE,
B.S., "Tony," Civil Engineering,
Tech, De Witt Clinton High School;
Student Council '33, Rifle Team,
A.S.C.E.

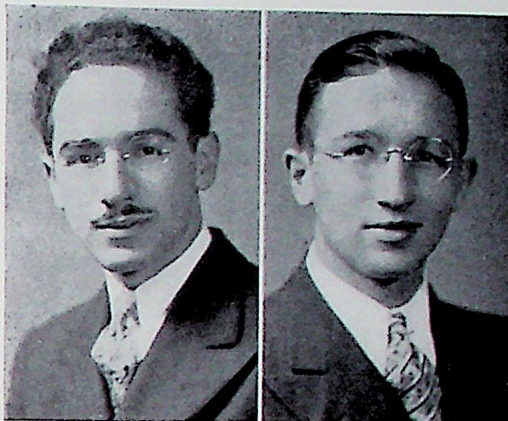


JOSEPH DI PRIMA, B.S., "Joe,"
Civil Engineering, Brooklyn Techni-
cal High School.

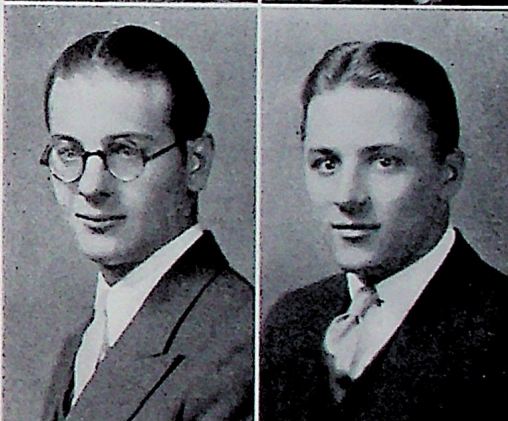
JOHN B. DONATO,
B.S., "Joe," Chemical Engineering,
Manual Training High School; Class
Sec. '32, Handball '30, Newman
Club.

welcome to new ideas, - - - —Peter Cooper

LEWIS DUBLIN, B.S., "Lew,"
ΠΣ, Electrical Engineering, Brooklyn
Technical High School.

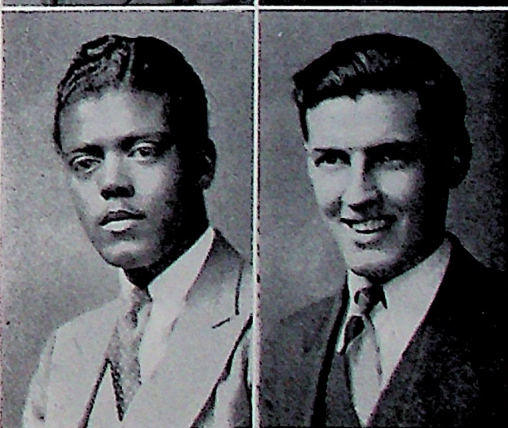


MAX DUBLIN,
B.S., Electrical Engineering, Tech;
Student Council '31, Interclass Bas-
ketball, A.I.E.E., Math Club, A. A.,
Pres. Lunch Club.



GEORGE DVORAK, B.S., Mech-
anical Engineering, Boys' Vocational
High School.

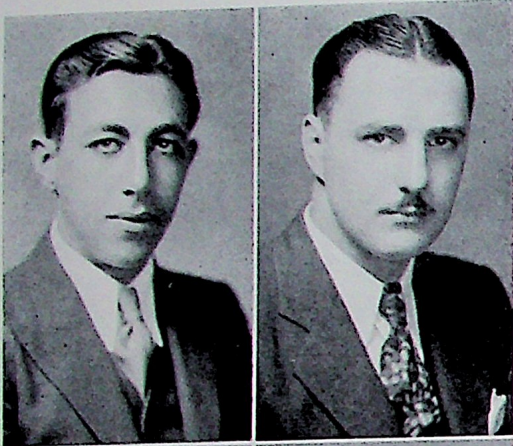
RUDOLPH DVORAK,
B.S., "Rudy," Civil Engineering,
New York Industrial High School;
A.S.C.E., Basketball '30, '31, '32.



GORDON EDWARDS, B.S., Civil
Engineering, Boys' High School;
A.S.C.E.

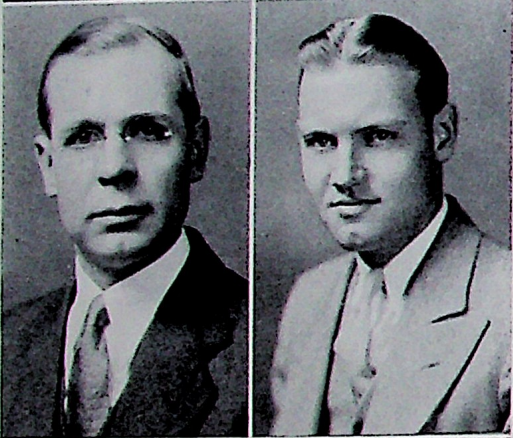
LOUIS J. FALCIOLA,
B.S., "Falci," Mechanical Engineer-
ing, Tech, Emerson High School,
Math Club, A.S.M.E., A.A., Con-
cert Orchestra.

"The object of life



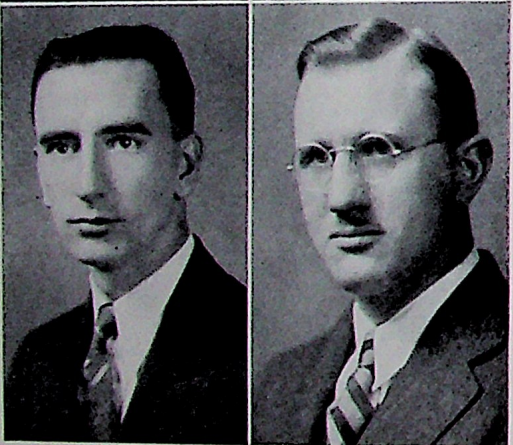
PAUL GIOVANELLO, B.S., "Gio," Civil Engineering, Tech, Franklin K. Lane High School; Class Sec. '34, Sec. A. A., A.S.C.E., Basketball, Football, Baseball.

MARCEL GOAZEMPIS, B.S., "Mars," $\Phi\Sigma\Omega$, Electrical Engineering, Rhodes Preparatory High School; Class Pres. '34, President Night and General Council '34.



JACOB HESS, B.S., "Hess," Mechanical Engineering, Topolya High School, Hungary; A.S.M.E.

H. WALTER HOLMIN, B.S., "Walt," Electrical Engineering, Brooklyn Technical High School.



JOSEPH HUMPHREYS, B.S., "Joe," $\Phi\Sigma\Omega$, Civil Engineering; Christian Brothers, Cork, Ireland; A.S.C.E.

HARRY IHLENBURG, B.S., Mechanical Engineering, Brooklyn Academy; Class Treas. '32, '33, A.S.M.E.

is to do good." —Peter Cooper

KARL ITKIN, B.S., "Kelly," Electrical Engineering, Tech, AMΣ, New Utrecht High School; Treas. Math Club '33, Rifle Club '30, '31, Math Club '30, '31, '33, A.I.E.E. '32, '33.

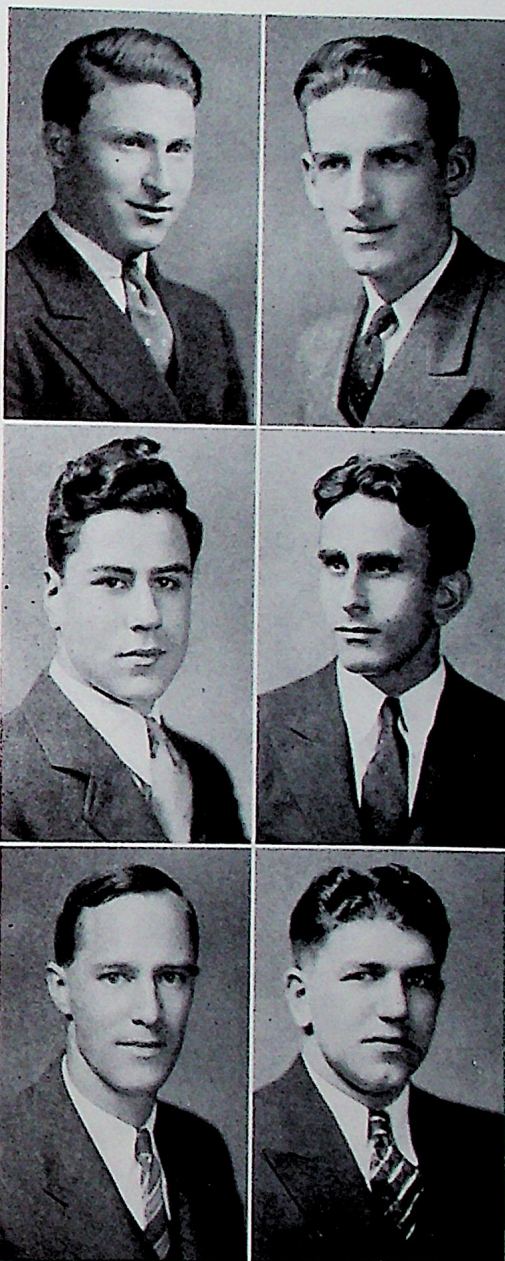
KERMIT J. KALNA, B.S., "Kern," ΣΑΠ, Electrical Engineering, West New York High School.

SAMUEL KAPLAN, B.S., "Kap," Chemical Engineering, Tech, East-side High School; Pres. A.I.Ch.E. '33, '34, Math Club.

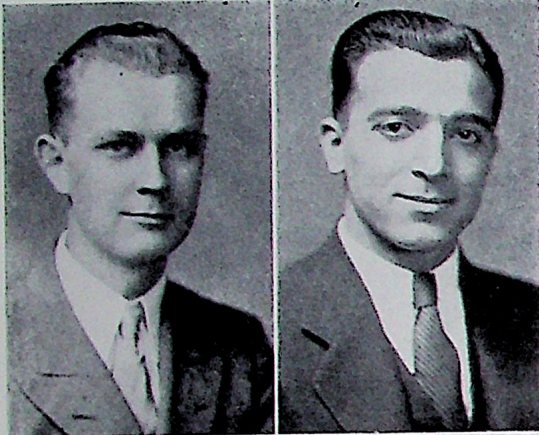
HARRY KIHN, B.S., "Hilly," Electrical Engineering, Tech, Passaic High School; Class Pres. '33, Sec. '33, Pres. '34, A.I.E.E., Basketball, Math Club.

WALTER C. KLEINFELDER, B.S., "Kleinie," Mechanical Engineering, Curtis High School; A.S. M.E., Class Sec. '32.

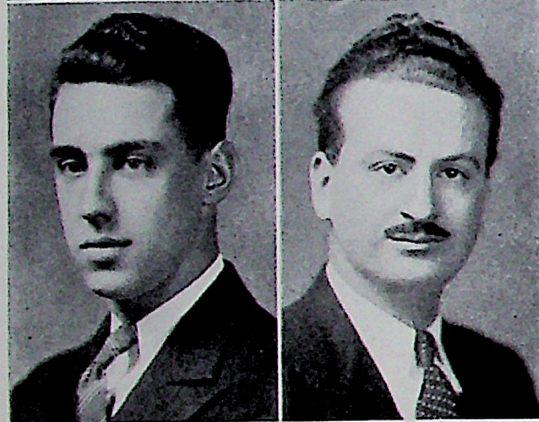
HERMAN H. KRAUSE, B.S., "Max," Electrical Engineering, Dickinson High School.



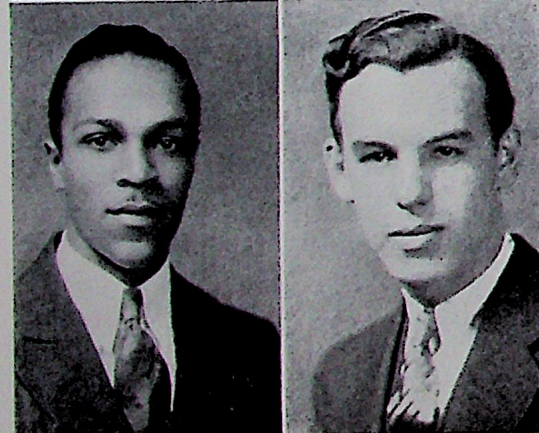
"I have always tried to do



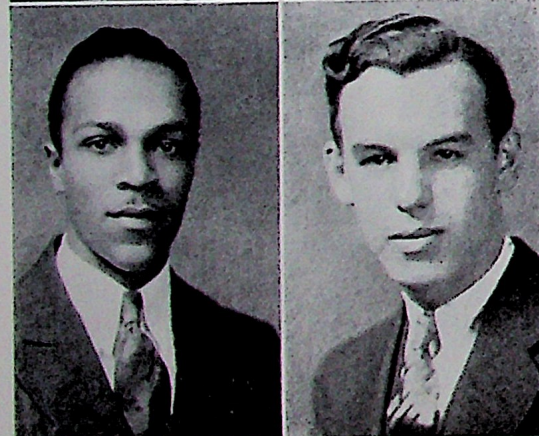
CARL H. KROPP, B.S., MAΩ, Electrical Engineering, Tech, Bethel High School; Student Council '31.



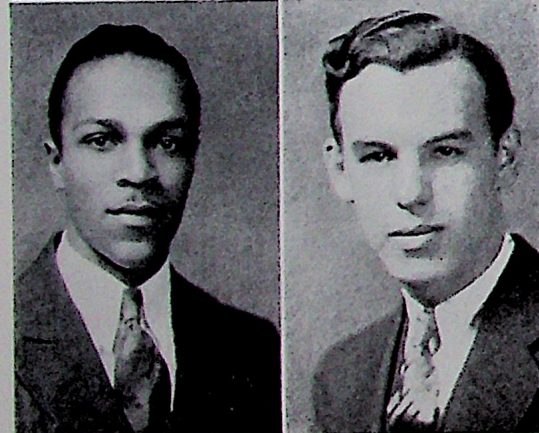
MICHAEL J. LA FORTE, B.S., "Mike," ΦΣΩ, Civil Engineering; A.S.C.E., Junior Prom Com., Vice-pres. '33.



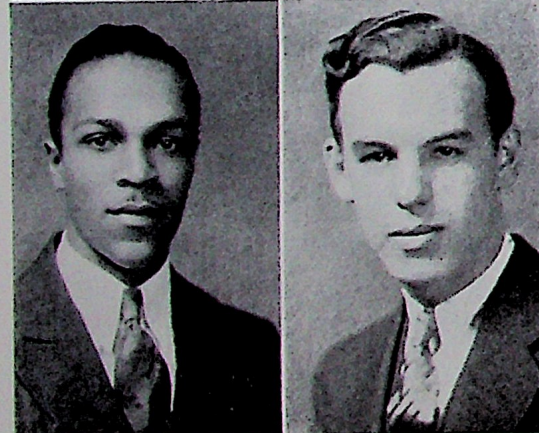
FRANKLIN B. LESLIE, B.S., "Les," Mechanical Engineering, ΩΔΦ, Brooklyn Technical High School; A.S.M.E., Math Club, M.A.O., Pioneer '30.



LESLIE L. LOWEY, B.S., "Les," Civil Engineering, Bryant High School; A.S.C.E.



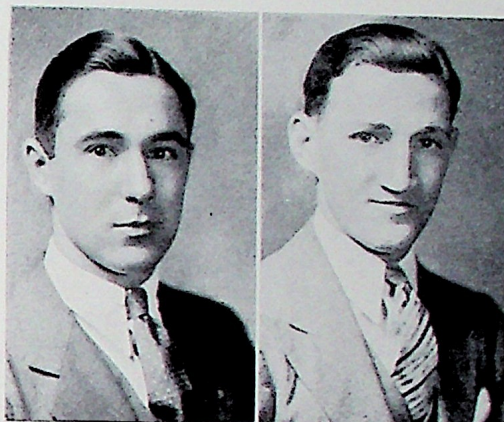
J. THURSTON MAGILL, B.S., "Mac," Civil Engineering, Tech, Erasmus Hall High School.



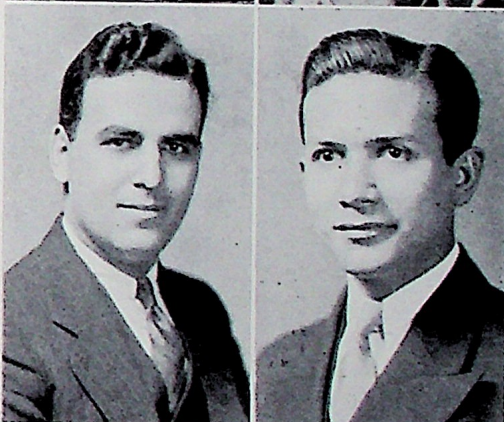
IRVING MATTHYSSE, B.S., "Irv," Electrical Engineering, Hebrew Technical Institute.

the best I know how." —Peter Cooper

PETER E. McKEITH, B.S., "Mac,"
Mechanical Engineering, Jamaica
Evening High School.



JAMES J. McMANAMY,
B.S., "Mac," $\Phi\Sigma\Omega$, Electrical Engi-
neering, St. Francis Xavier High
School.



FRANK MELACCIO, B.S., "Joe,"
Chemical Engineering, Bushwick
High School.

SOLOMON MESEL,
B.S., "Sol," Electrical Engineering;
Collegio Americano Baptista, Per-
nambuco, Brazil.



JACK R. MILLER, B.S., "Jack,"
Electrical Engineering, Townsend
Harris High School, C.C.N.Y.; Edi-
tor-in-Chief of Cable '33, Class Pres.
'31, Class Sec. '30.

LOUIS MOND,
B.S., "Louie," Electrical Engineer-
ing; Zakrzewski High School, Po-
land.

"I believe that she - his wife -



RAYMOND F. MORAN, B.S.,
"Ray," $\Omega\Delta\Phi$, Chemical Engineering,
Brooklyn Technical High School;
Class Treas. '33, Track '31, '32,
Asst. Man. Ed. Cable '33, Jr. Prom
Com. '33, Robert Sprice Prize '30.

GEORGE W. O'BRIEN,
B.S., "Obie," $\Phi\Sigma\Omega$, Electrical Engi-
neering, Jamaica High School; Class
Pres. '31, '32, Track '30-'33, Capt.
'32, Treas. '32, Pres. '34, C.U.A.A.



JOSEPH O'BRIEN, B.S., "Joe,"
 $\Phi\Sigma\Omega$, Civil Engineering; Christian
Brothers, Ireland.

DOUGLAS F. OLIVER,
B.S., "Doug," $\Omega\Delta\Phi$, Electrical Engi-
neering, Tech, Jamaica High School;
Orchestra, Math Club, A.I.E.E.



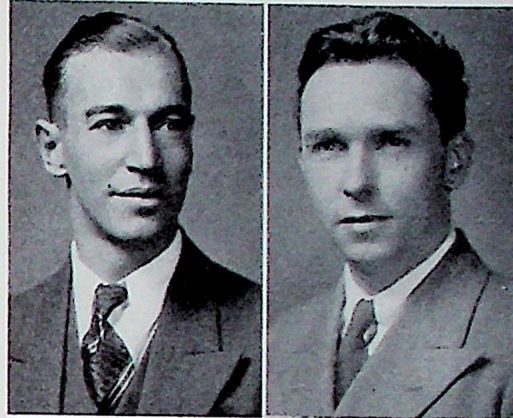
JOSEPH EDWARD OWENS,
B.S., "Joe," $\Phi\Sigma\Omega$, Mechanical Engi-
neering, East Technical High School;
A.S.M.E.

GEORGE H. PETERS,
B.S., "Pete," Civil Engineering,
Erasmus Hall High School; A.S.C.E.

is my guardian angel."

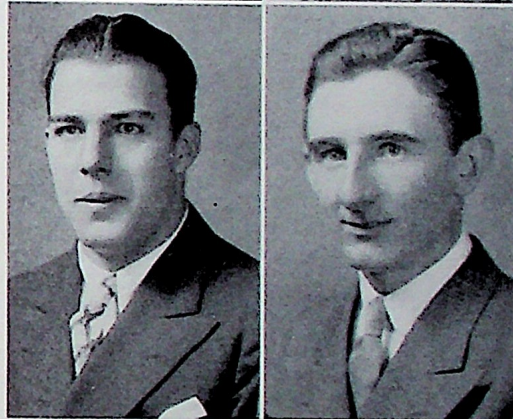
—Peter Cooper

JOHN H. PETERSON, B.S.,
"Pete," $\Omega\Delta\Phi$, Mechanical Engineer-
ing, Brooklyn Technical High
School; Class Sec. '33, Class Vice-
pres. '34, Junior Prom '33, Treas.
A.S.M.E. '33, Pres. A.S.M.E. '34.



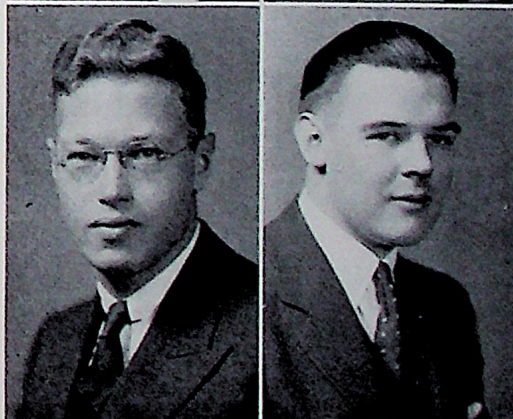
JAMES PHELAN,
B.S., "Jim," Civil Engineering; Rock-
well College, Ireland; A.S.C.E.

ARTHUR O. PLOETZ, B.S.,
"Bob," $\Omega\Delta\Phi$, Chemical Engineering,
Stuyvesant High School; Track,
Football, Captain '32, Annual Dance
Com. '31, '32, Class Pres. '30-'33,
C.U.N.S.C. '30-'32, Treas. '32, G.S.
A.C. '33, Gold "C" Com. '33, Man.
Editor Cable '33, Gold "C" '32, Sil-
ver "C" '33, A.A.



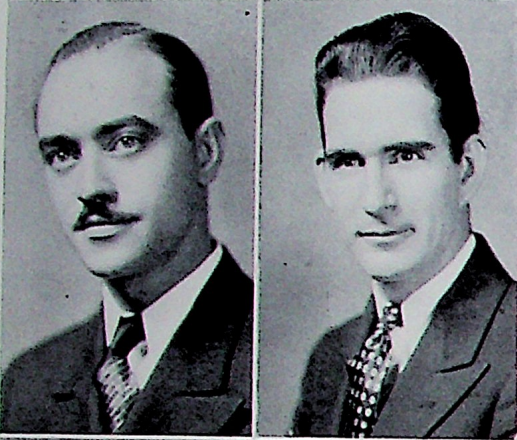
GERARD A. ROHLICH,
B.S., "Jerry," $\Phi\Sigma\Omega$, Civil Engineer-
ing, Bushwick High School; Junior
Prom Com. '33, Annual Com. '33.

ARTHUR ROMAN, B.S., "Joe,"
Chemical Engineering, Boys' High
School; Class Treas. '34, Class Vice-
pres. '33.



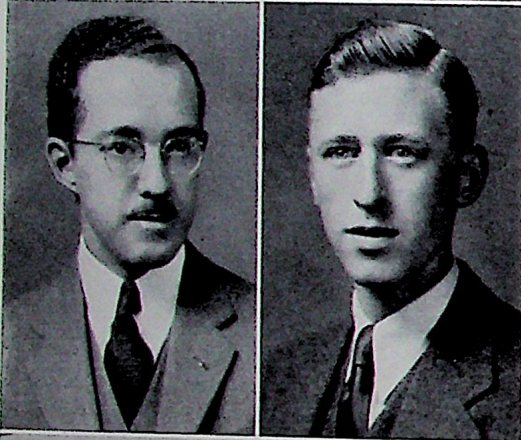
WALTER ROWLAND,
B.S., "Walt," $\Omega\Delta\Phi$, Civil Engineer-
ing, Textile High School; A.S.C.E.,
Class Sec. '33, Math Club, Adver-
tising Mgr. of Cable '33, Ex-Post
Facto '33, Gold "C" '33.

"My hopes embrace humanity"



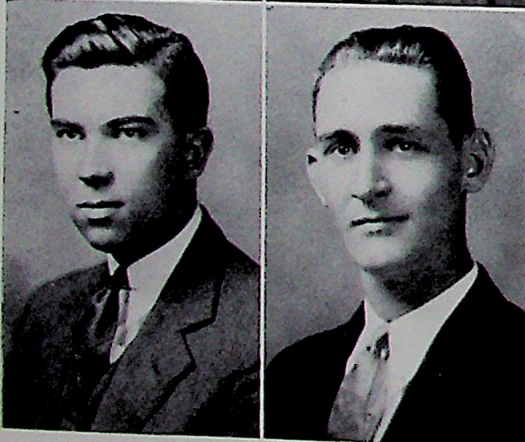
KURT SCHLANG, B.S., "Kurt,"
Electrical Engineering; Oberreal-
schule Konstanz, Germany.

JOHN L. SHERRY,
B.S., "John L.," $\Omega\Delta\Phi$, Mechanical
Engineering, Dickinson High School;
A.S.M.E.



HERMAN L. SCHICK, B.S.,
"Hermie," $\Omega\Delta\Phi$, Mechanical Engi-
neering, Brooklyn Vocational
School; Photo Editor '33, Ex-Post
Facto '33, Gold "C" '33, Class Pres.
'34.

WALTER SIMONS,
B.S., "Whitey," $\Phi\Sigma\Omega$, Civil Engineer-
ing, Dickinson High School; A.S.
C.E.



WILLIAM CONDIT STEVENS,
B.S., "Bill," $\Sigma\Delta\Pi$, Civil Engineering,
Tech, Buffalo Technical High
School; Class Vice-pres. '34, Rifle
Team '33, '34, A.S.C.E., Math Club,
Student Council '33.

JAMES STUBLER,
B.S., "Jim," Civil Engineering;
A.S.C.E.

throughout the world." —Peter Cooper

JOHN J. TESORIERO, B.S.,
"Johnny," ΦΣΩ, Electrical Engineer-
ing, Hebrew Technical Institute;
Basketball '30.

CESAR TOLIVAR,
B.S., "C," Electrical Engineering,
ΦΣΩ, Brooklyn Vocational School,
Brooklyn Evening High School;
Class Sec. '33, C.U.A.A., Senior Hop
Com.

RALPH TOROP, B.S., "Shorty,"
AMΣ, Chemical Engineering, Tech,
Asbury Park High School; Class Sec.
'32, '34, Class Treas. '33, A.A. Sec.
'33, Vice-pres. '34, A.I.Ch.E. Vice-
pres. '33, Pi Sigma, Math Club.

EMIL FREDERICK TRENCK,
B.S., Mechanical Engineering, New
Rochelle High School; Math Club,
Orchestra.

CHRISTIAN A. WAMSER, B.S.,
"Chris," Chemical Engineering,
Tech, Bryant High School; A.I.Ch.
E., Math Club.

EDGAR WATSON, B.S., "Ed,"
Civil Engineering.

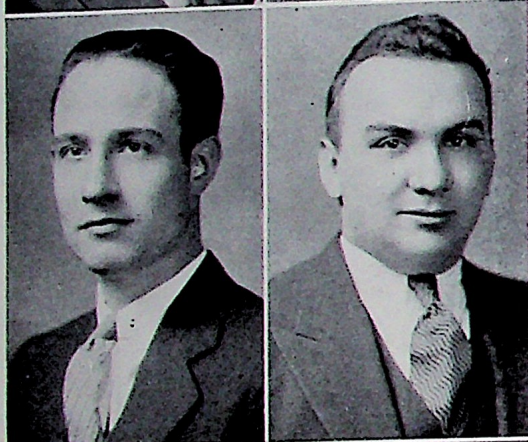


"I do not feel old." —Peter Cooper



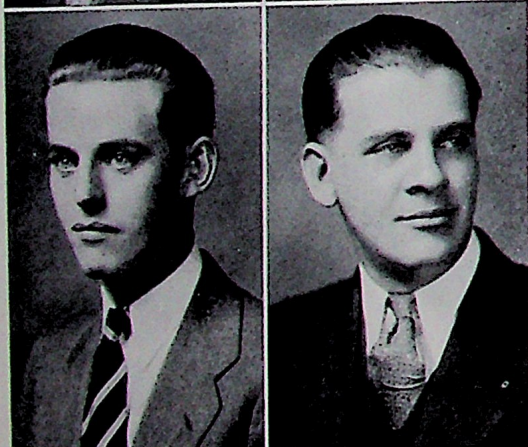
ARTHUR A. WECHSLER, B.S.,
"Artie," Civil Engineering, Boys'
High School, C.C.N.Y.; Treas.
'33, Chairman '34, A.S.C.E., Class
Sec. '34.

SIDNEY WEINBERG,
B.S., Electrical Engineering, New
Utrecht High School.



PETER F. WIELD, B.S., "Pete,"
Electrical Engineering, $\Phi\Sigma\Omega$, Jamaica
High School; Junior Prom Com. '33.

ANTON J. WILLE,
B.S., "Tony," $\Phi\Sigma\Omega$, Electrical Engi-
neering, Townsend Harris Hall
High School; A.I.E.E. '32, '33, Class
Treas '33, '34.

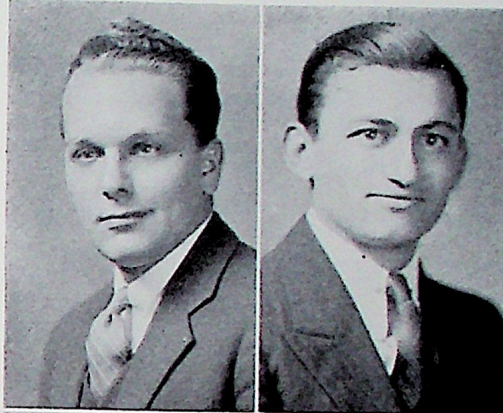


RICHARD A. WYLIE, B.S.,
"Dick," $\Omega\Delta\Phi$, Electrical Engineering,
Tech, Manual Training High School;
Class Sec. '33, Student Council '33,
Rifle Team, Treas. '31-'33, Vice-
pres. '34, A.I.E.E.

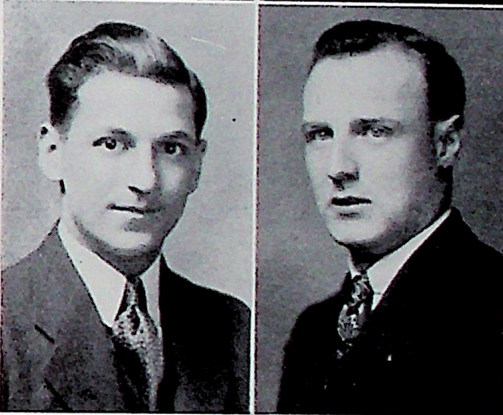
STANISLAUS ZAWADOWICZ,
B.S., "Stan," $\Omega\Delta\Phi$, Civil Engineering,
Dickinson High School; A.S.C.E.,
Business Mgr. Cable '33, Ex-Post
Facto '33, Gold "C" '33.

SCHOOL OF ARCHITECTURE

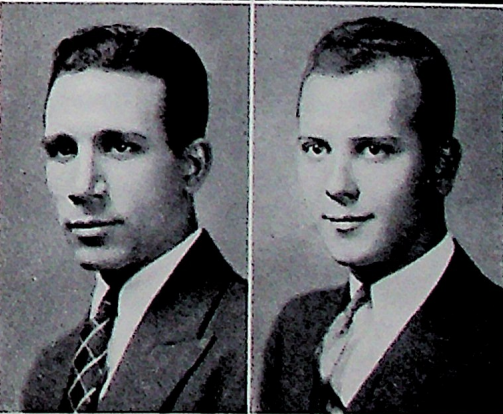
FRANK P. BROZ, "Frank," ΔΣΚ,
Architecture, Newton High School;
Class Sec. '33, Section Pres. '34,
Arch. Editor '33.



DOMENIC CASTELLO,
"Cossy," Architecture, Mount Ver-
non High School; Class Sec. '31,
Pioneer '32.



ALBERT J. CLERMONT Jr.,
"Bob," ΔΣΚ, Architecture, Saunders
Technical High School; Class Treas.
'33, Class Sec. '34, Key Com. '34.



LAWRENCE C. CONNIN,
"Larry," Architecture, Dickinson
High School; Class Pres. '33, Section
Treas. '34, Honorable Mention '32,
'33.

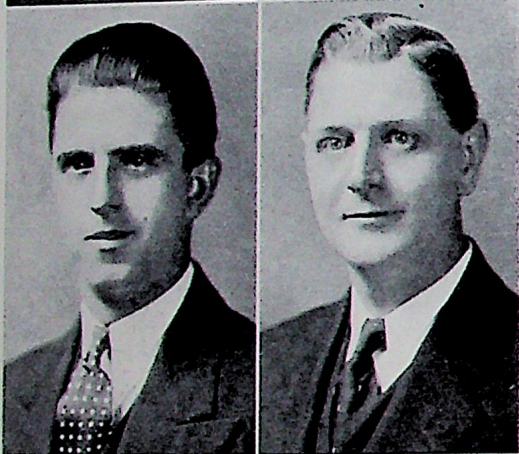
STANLEY PAUL CURIONE,
"Cury," Architecture, Washington
Irving Evening High School; Section
Treas. '33.

STEPHEN D'ELICIO,
"Steve," Architecture, Bay Ridge
Evening High School; Section Pres.
'33, Section Treas. '34.

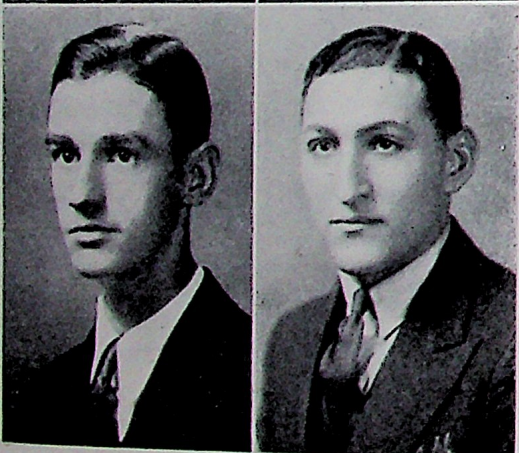
"I have taken a deep interest in - - -



DOMENIC PAUL DITRANO,
"Tom," Architecture, Vocational
High School; Section Vice-pres. '33,
'34. Honorable Mention '31, '33, Sec-
ond Prize '32.



WALTER J. FOLEY,
"Tarzan," Architecture, Commerce
High School.



CLINTON GARRISON, "Lefty,"
Architecture.

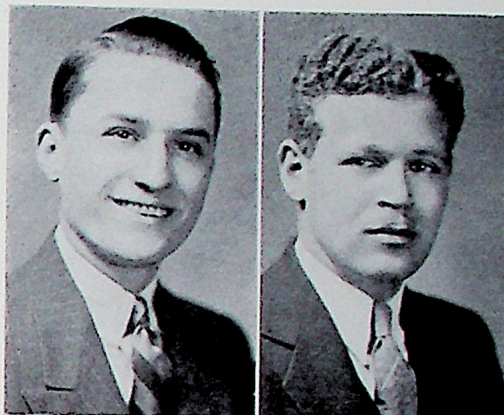
CHARLES R. HANSEN,
"Charlie," Architecture; High
School, Denmark.

RONALD HOLDEN, "Jack," Arch-
itecture, Tottenville High School.

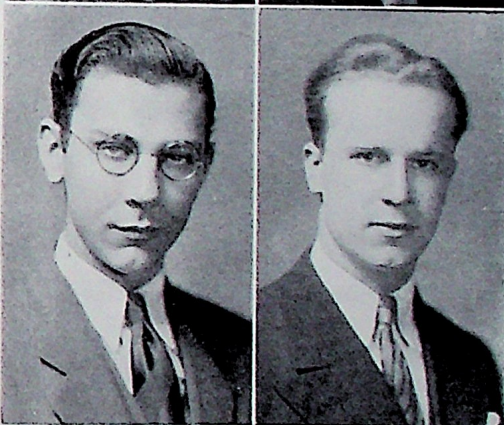
ISADORE A. KANTOR,
"Addy," Architecture, Morris High
School; Section Treas. '34.

the progress - - - of the century." —Peter Cooper

ROBERT A. KOPECKY, "Bob,"
Architecture, Bushwick High School.

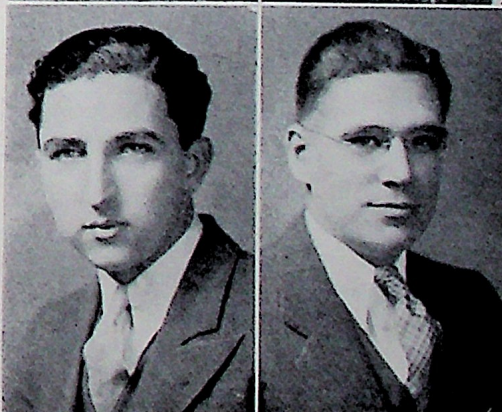


IRVING L. KOPELMAN,
"Whitie," ΔΣΚ, Architecture, New
Utrecht High School; Class Pres.
'31, Class Treas. '32, Junior Prom
Com. '33, Senior Hop Com. '34.



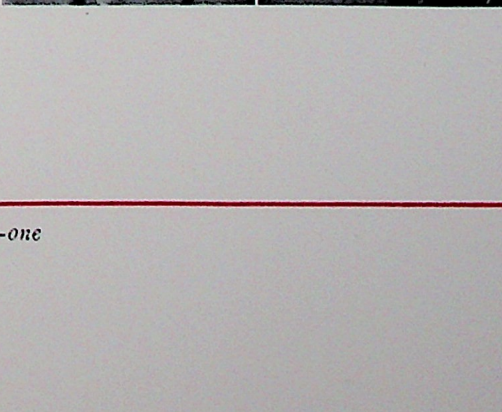
JOSEPH KRAMER, "Joe," Archi-
tecture, Evander Childs High
School, Morris High School.

EDWARD KRULISH,
"Skipper," Architecture, Murray
Hill Technical High School.

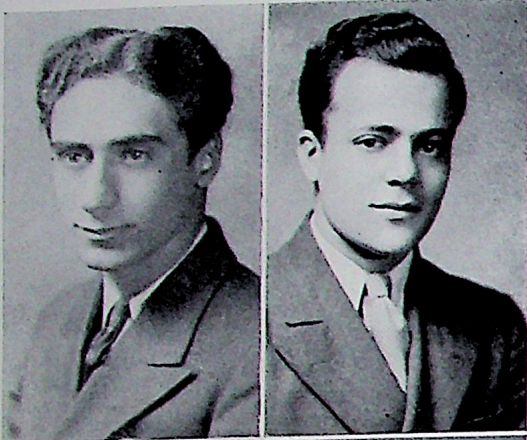


DAVID A. LEON, "Dave," Archi-
tecture, De Witt Clinton High
School.

JOHN J. LEPART,
"Johnny," Architecture, Yonkers
High School.

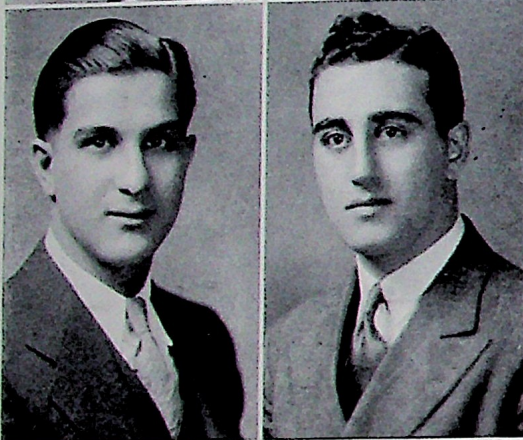


"Let us unite to sustain



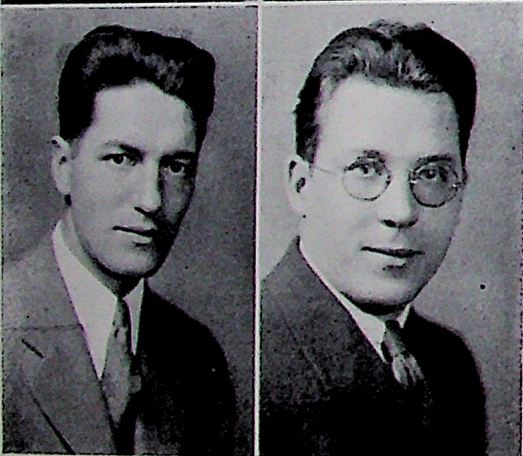
LEON LEVINE, "Leo," Architecture, Stuyvesant High School; Track Team.

AMERIGO M. LIBERATI, "Mac," ΔΣΚ, Architecture, Port Chester High School.



DOMINICK LUCIANI, "Danny," Architecture, New Utrecht High School; Section Vice-pres. '33, Section Sec. '34, Track Team '30.

FRED C. MELI, "Freddie," Architecture, Weehawken High School; Pres. of Junior Membership of New York Society of Architects.



WALTER B. NEWBERGER, "Walt," Architecture, Plainfield High School.

OTTO NEUER, "Ott," Architecture; Ludwig Gymnasium, Munich.

the government"

—Peter Cooper

JOHN PATRICK NEVINS, "Jack,"
ΑΣΚ, Architecture, James Monroe
High School; Class Pres. '33, Gold
"C" '33, Student Council '33.

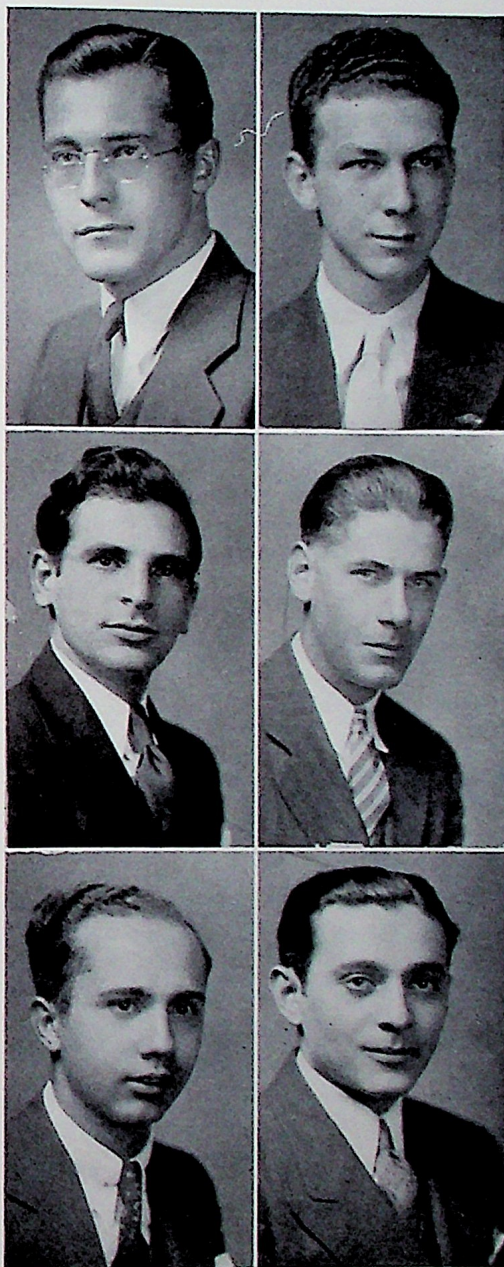
ALVIN POMERANTZ,
"Al," Architecture, ΑΣΚ, Leonia
High School; Soph Hop Com.

ELIAS H. REIF, "Harrius," Archi-
tecture, New Utrecht High School;
Class Pres. '32, '34, Section Pres. '33,
Handball '32, '33, Vice-chairman
Senior Hop Com. '34.

FREDERICK L. RICHMEYER,
"Rick," Architecture, Richmond Hill
High School.

CARROLL A. SAIA, "Inch," ΑΣΚ,
Architecture, Bay Ridge Evening
High School; Class Treas. '33, Sec-
tion Vice-pres. '34.

ALBERT SCHECHTMAN,
"Al," Architecture, De Witt Clinton
High School.

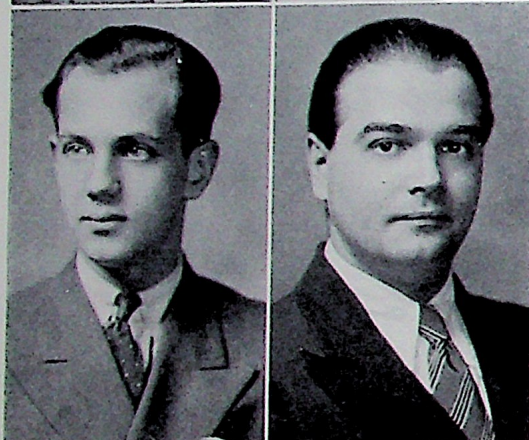


"There is beauty in goodness." —Peter Cooper



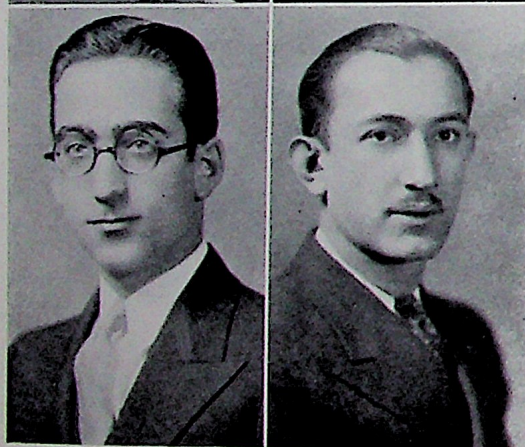
NUNZIO SCHEPIS, Architecture;
Ouachita Paris High School, Mon-
roe, La.

REVA SEGALL,
"Canuck," Architecture, Ottawa
High School; Sec. Student Council
'31, '32, '33, '34.



JACK K. SILVERMAN, "Jay,"
Architecture, Morris High School;
Class Sec. '32.

JOSEPH SZABO,
"Joe," Architecture, Stuyvesant
High School.



FRANK TESSITORE, "Frank,"
Architecture, New Utrecht High
School; Sec. Senior Hop '34, Hon.
Mention '31, '33, Class Treas. '33,
'34, Arch. Council '34.

DAVID WEISBERG,
"Davvy," Architecture, East Side
Evening High School; Junior Prom
'33.

SCHOOL OF ART

EVELYN AVIDAN, Commercial Design.

Cooper shall miss good-hearted, lovable, and helpful "Eve;" would that there were more like her.

ALFRED BIRNSTEIN, Commercial Design.

Al is the type of fellow Cooper needs more of. It was a pleasure knowing him.

MATT B. BLANK, Commercial Design.

"Matty" has calm good sense, say his classmates, and clever enough to sell sand to the Arabs.

ALBERT C. BOBAT, Pictorial Design.

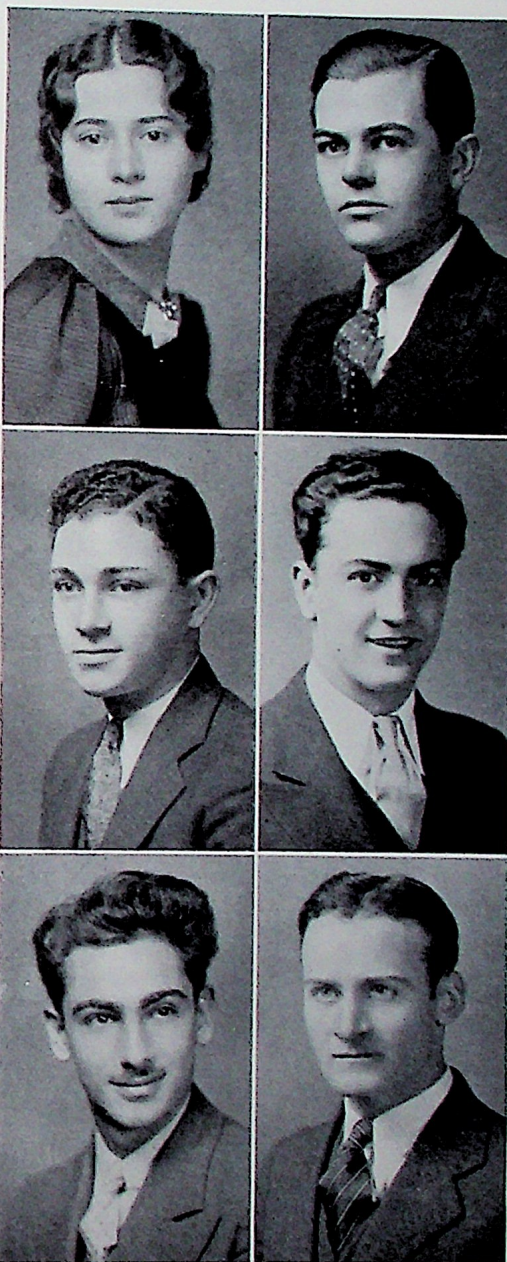
The class authority—an expert on stocks and blondes. Brunettes, and red-heads likewise a specialty.

BEN BRONSTEIN, Commercial Design.

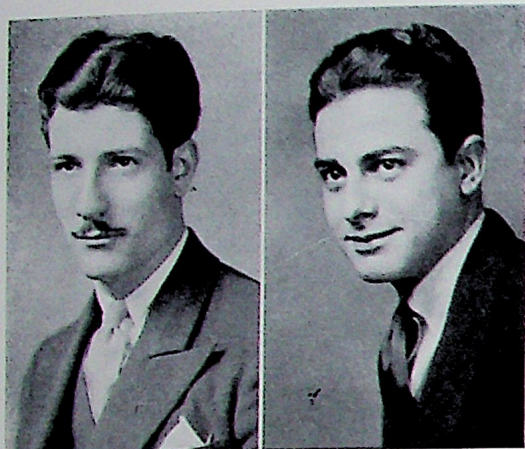
A Toscanini or Artist, Bronnie wants to be, when he reaches either one, a mighty man he'll be.

ALBERT COLABELLI, Commercial Design.

Al, a Jersey boy, is heading for sport cartooning. He wants to marry a "modern" (with old fashioned ideas).



"My faith in human nature is - - -

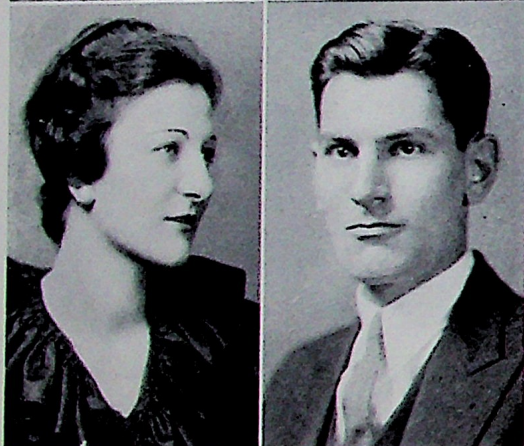


J. J. CARISTIA, Pictorial Design.

Jay is one of those boys who'll always be a credit to Cooper Union and his instructors.

ARTHUR ROY CHIANI, Commercial Design.

Just plain Arthur to us, but the Radio World knows him as Stephen Barry or Bing Crosby's future headache.

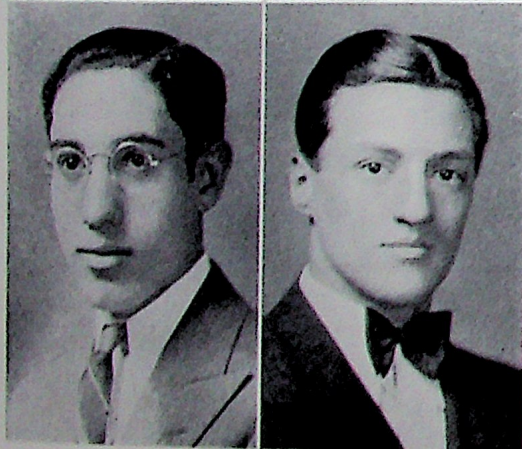


LUCY CICCARELLI, Commercial Design.

Together with a captivating manner and sunny temperament, Lucy has a record as bright as her smile.

IRVING COHEN, Pictorial Design.

Irv is marked for success by his classmates because of his energy. He likes them "tall and lanky."



HYMAN J. COOPERSTEIN, Pictorial Design.

Part of his name spells "Cooper" so Hymie's proud. Described by his classmates as a quiet little fellow who'll make big strides.

CHRISTY DEJERENIS, Pictorial Design.

Chris is so active in sports and Pioneer work that we haven't space enough for him. He wants a Greek chef for a partner.

fresh & - - - young' —Peter Cooper

MARGARET De MELIO, Commercial Art.

Dark eyes and sunny smile. Says she wants to marry a "male" and her favorite song is Margie.

EDWARD S. DIESNER, Commercial Design.

Eddie is one who will always live up to being a likeable person and a fine artist.

ALFRED DIETZSCH, Pictorial Design.

Al, a silent he-man likes them very short and his favorite drink is beer.

RUDOLF EHRLICH, Commercial Design.

When big ideas come bigger and better, "Dutch" will make them better and bigger.

HARRY EHRLICH, Commercial Design.

Likes to sing; likes Ben Bernie. Continues contradictions by expecting a pretty blonde partner who can cook.

THEODORE ESPOSITO, Pictorial Design.

Teddy, a dual personality, musical and artistic. Will fiddle and draw his way to success.



"I have endeavored not to feel



HELEN FEUER, Commercial Design.

Curly will be remembered as the very charming girl with the big brown eyes, and lovely hair.

HYMAN FLEISS, Pictorial Design.

Artie, last year's secretary; is a fellow whom one would like to have as a real friend.

HARRY FRIEDMAN, Commercial Design.

Harry, tall, dark, and handsome does fine work and has the seal of approval of his classmates.

HELEN C. FRIEDMAN, Commercial Design.

Popular Helen, better known as "Smiles," keeps in trim with athletics, music and art.

MAURICE GAMACHE, Pictorial Design.

Good natured and knows his sports. Maurice is one of the really nice fellows of Cooper.

GEORGE JOSEPH GABER, "Chubby," Architectural Modelling, De Witt Clinton High School; Class Sec. '32, '33, '34, Football '32, '33.

too old to learn."

—Peter Cooper

VICTOR GARDNER, Commercial Design.

Vic is a little shy, likes swimming and prefers Garbo in the movies.

FRANK A. HAAS, Commercial Design.

Frank is stamped as Cooper's original stamp collector, and a quiet chap with a ready answer.

LAURENCE HALLERAN, Commercial Design.

Larry's greatest ambition is to succeed at art and he is known as the likeable imp.

ELLSWORTH HERBERT, Commercial Design.

Ellsworth is a chap liked very much. He says very little and keeps out of dutch.

ANN HOCHBERG, Commercial Design.

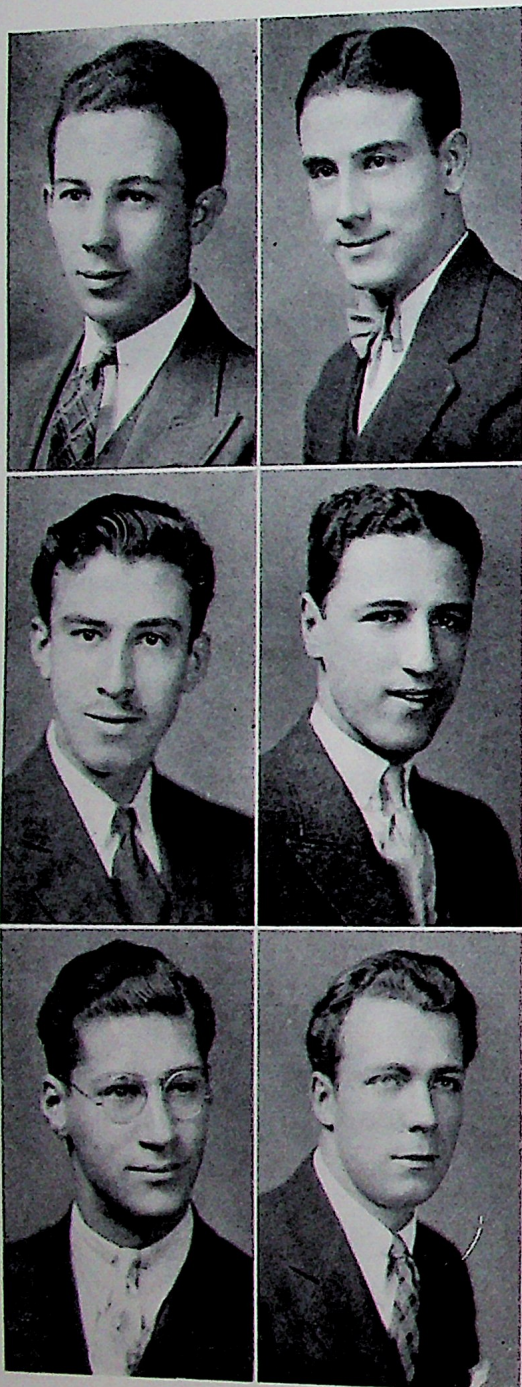
The charming, vivacious, and democratic personality of "Anuska" will always be the happy remembrance of her classmates.

WILLIAM E. HOLM, Commercial Design.

Nature made him as she should, not too bad and not too good.



"I have been ready to engage in



HARRY ISAACSON, Commercial Design.

Harry likes music, art, literature, sports, and beer and is a good watercolorist. Who could dislike him?

LOUIS J. IZZO, Commercial Design.

All great men are dying quickly, Lou himself feels rather sickly.

IRVING KABAT, Commercial Design.

Our undisputed class critic. Speech is silver, silence is golden! We're quite sure he prefers silver.

LOUIS KAMMERER, Free Hand Drawing.

Lou is a great believer in the impossible.

LOUIS KRACKOW, Commercial Design.

"Benzol," a square shooter with a sense of humor, and a love for art and aviation.

EDWARD KRUKOWSKI, Commercial Design.

Ed in full: Talents—art and music; Ambition—art director; Hobbies—skating and butterflies; Disipation—police gazette.

all new enterprises."

—Peter Cooper

ROSE LEIBOWITZ, Commercial Design.

With the most enviable record in Cooper we boast—Rose, known by all, loved by all.

NICHOLAS LESLIE, Pictorial Design.

Nick is witty. Likes all the arts, and says he is preparing for marriage by fencing.

HAROLD LESSER, Commercial Design.

Hal, hails from dear old Bawston, but it was never held against him. We like him.

JACK LUZZATTO, Pictorial Design.

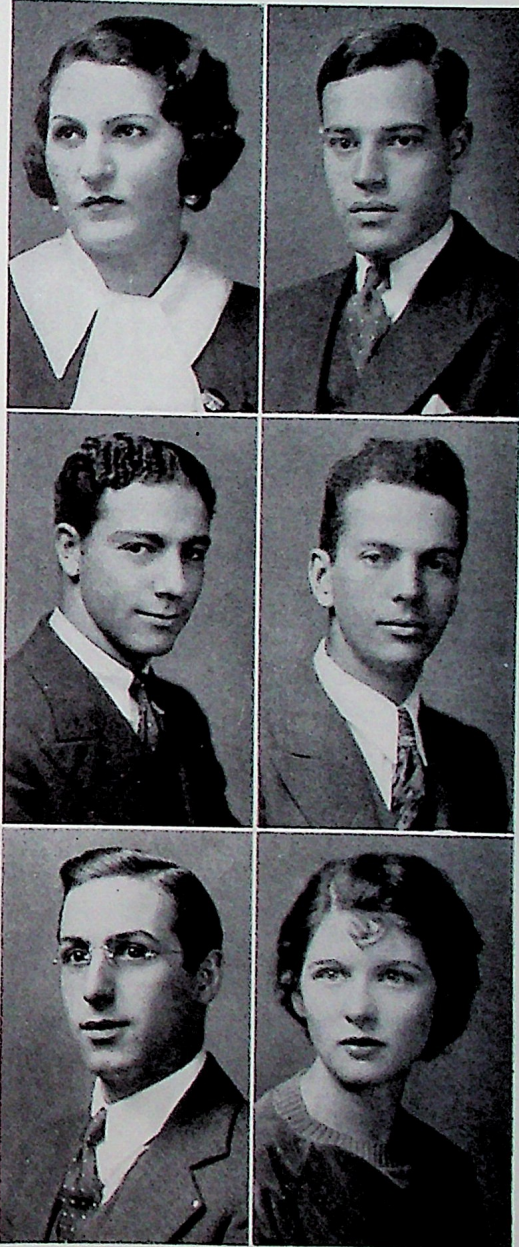
Happy Jack takes nothing seriously with perhaps his art as the exception. O yes, women too.

JOHN I. MALPAS, Commercial Design.

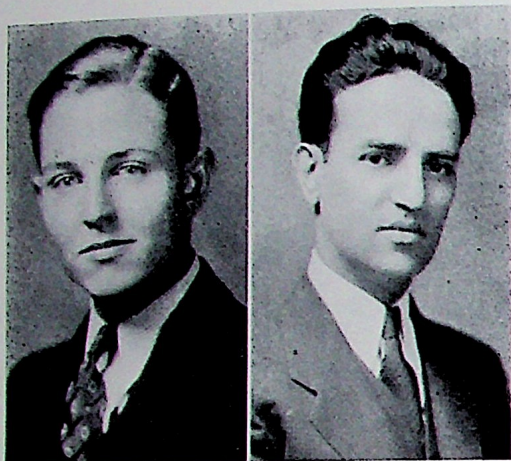
Jack, quiet and attentive, does fine work. If continued he will retire at fifty,—his ambition.

FRANCES MALY, Commercial Design.

In Cooper, Frances is quiet and demure, outside of school we are not quite so sure.



" - - acquiring knowledge - is - the purest - - "

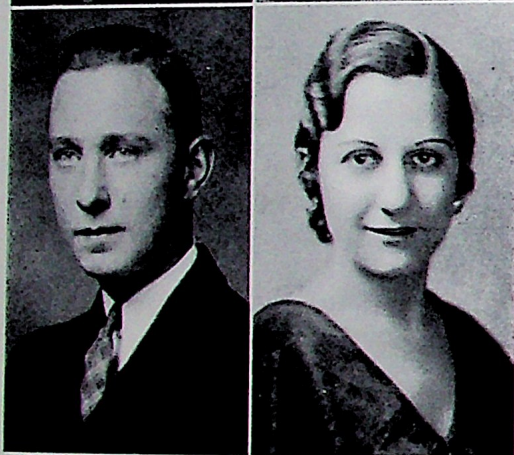


EDISON MANCUSO, Commercial Design.

If smiles keep one alive, Ed should live till ninety-five.

CARL MARMER, Pictorial Design.

Profound respect to Carl, a father of two children, a partner in business, a creditable art student.

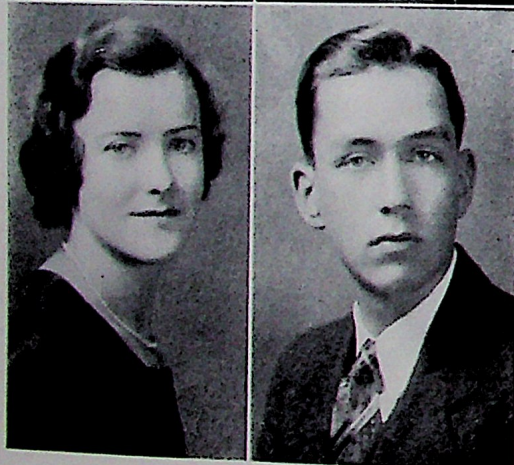


ALOYSIUS J. MARTE, Advertising Art.

Alois knows his wants—gets them sometimes. His blonde hair is the source of feminine envy.

PAULINE MATER, Commercial Design.

Happy, a sweet girl whose pleasant manner made her company a tonic, like rare old wine.



ELEANOR M. MATREJEK, Commercial Design.

El, quiet, capable and bothersome to none. We will remember your charm and sincerity always.

THEODORE MATHEWSON, Pictorial Design.

His mind is as strong as iron bonds. His only weakness, beautiful blondes. (Tall ones.)

of all sources of enjoyment." —Peter Cooper

HARRY MEISTER, Commercial Design.

Harry is an ambitious and amiable chap. His classmates have great hopes for his future.

HOWARD A. O'MEALY, Commercial Design.

Good looking Howard, good at his arts. Makes perfect endings for all that he starts.

JOSEPH PAUL, Pictorial Design.

Legs' aim is mural painting. His quiet and determined nature befits his serious intentions.

HERBERT A. RAU, Pictorial Design.

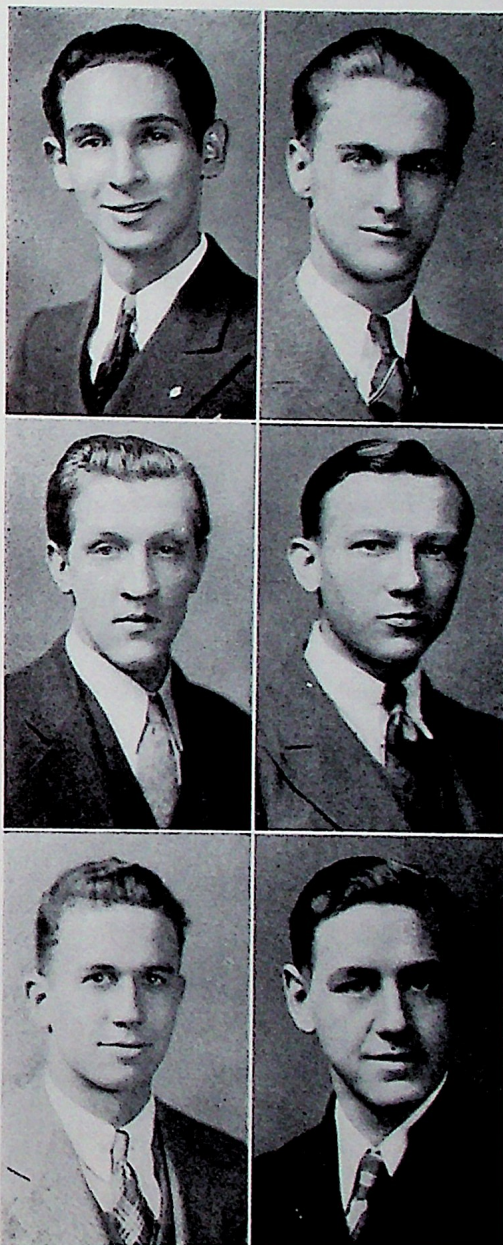
'Twas good knowing Dutchie—ever smiling, ever helping, ever dependable, surely a gentleman always.

MAXIMILIAN R. RECHER, Pictorial Design.

Max loves animals, has a flare for painting them, enjoys athletics, studies nature, which makes him regular.

LEONARD ROESSNER, Commercial Design.

Lenny wants to play fiddle for royalty and marry his class president. Monarchy or Republic—which?

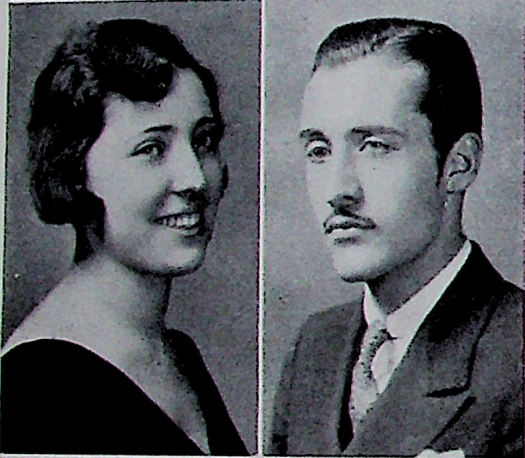


"My father felt I was to be



STANLEY A. RONDA, Pictorial Design.

Stan is a rarity. A combination of good fellow and hard worker, devoted to his art and his classmates.

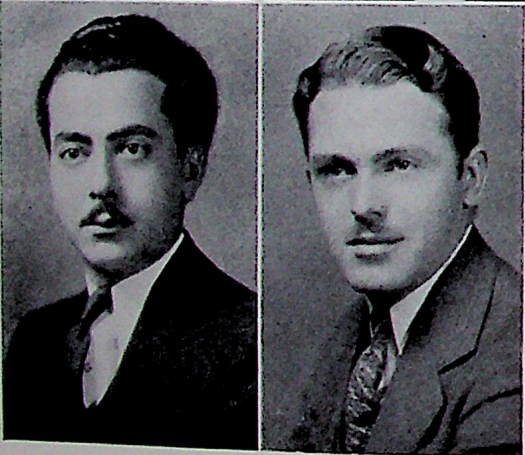


RICHARD ROSE, Pictorial Design.

Dick the dreamer, says little but says it well. He is hard working and paints fine portraits.

ELSA ROSSMAN, Commercial Design.

Despite the fact that Elsa's favorite diversion is sleep and she likes buttermilk, she's great fun.



EMILIO RUGGIANO, Pictorial Design.

Ruggie is a polished gentleman with a smile the ladies can't resist. Our future portrait painter.

NAT SINGER, Commercial Design.

Nat can give all his time to his art now that he's married, "Continue, Nat," you'll succeed.

HARRY SMILKSTEIN, Pictorial Design.

Harry played Tennis and Basketball for Cooper. Art, music, drama and literature are his dissipations.

of great good."

—Peter Cooper

JACK V. SNYDER, Commercial Design.

Vinny comes from Pittsburgh, Pa. He's one of those big strong silent men with common sense.

ARTHUR STANKOWITZ, Commercial Design.

An artist, a man, and all round good sport. 'Tis plain to see he's the very best sort.

HYMAN H. STEINBERG, Commercial Design.

Hy is the Treasurer of the Senior Class. His ambition is to become a successful commercial artist.

JUDITH STERN, Commercial Design.

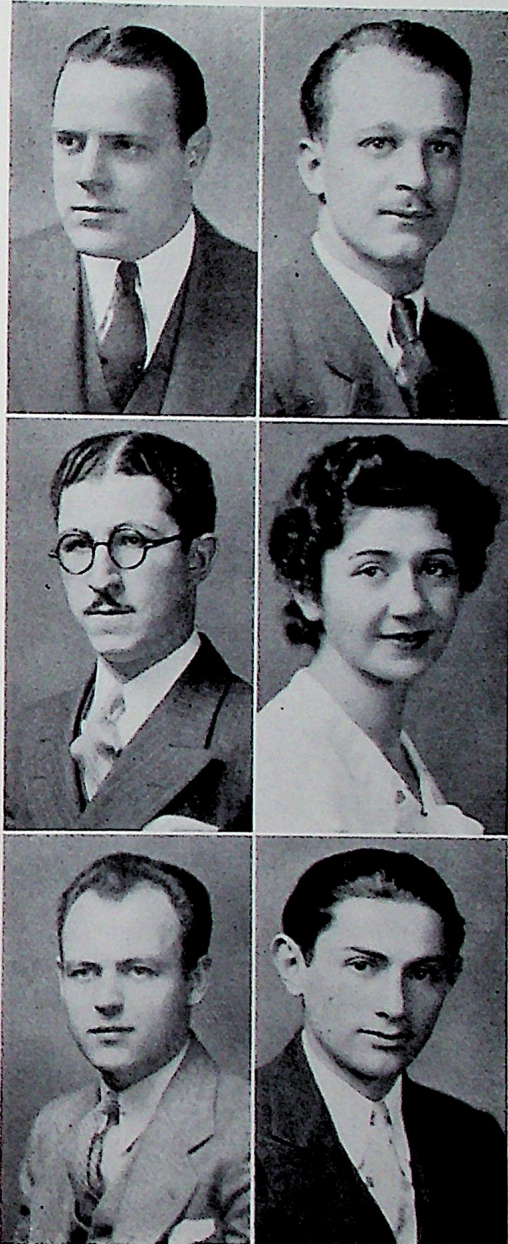
When a girl is sincere, good natured, has sensible tastes, and is likeably lovely—she must be like Judith.

LOUIS SZALAY, Commercial Design.

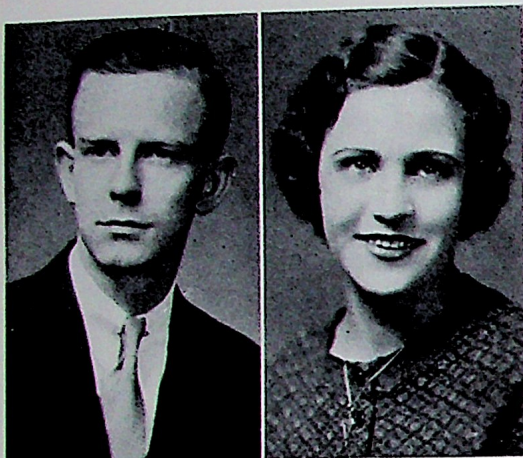
Louis is a fine fellow, but if he wants to succeed he must learn to take it.

SOL TABISEL, Pictorial Design.

Tappy is economical with his paints on canvas but very extravagant with it on his clothes.



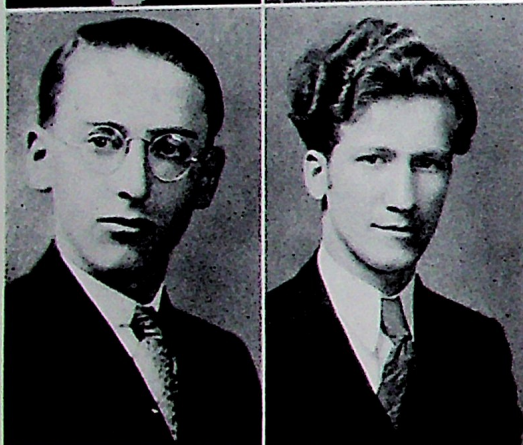
"Another hundred thousand." —Peter Cooper



PETE WADE, Commercial Design.
A fellow his pals swear by, not at.
Pete is a gem—a red-headed one.

HELENE WAGNER,
Commercial Design.

Helene is also interested in the rest
of the arts. She loves fishing.



SOL WEITZMAN, Commercial
Design.

Call me Lefty. Want to take a
hike? Well, don't bring any women.

FRANK J. WENGER
Free Hand Drawing.

He does not have so much to say,
but that he says in a pleasant way.



VINCENT ZELENKA, Commer-
cial Design.

Vince would like to have a tall,
dark and intelligent woman, with a
few others on the side.

JOSEPH L. ZVACS,
Commercial Design.

Joe is a very earnest and capable
artist who knows his wants and
won'ts.

THE HEWITT BUILDING

In 1912 two stories of the Abram S. Hewitt Memorial Building were completed and equipped for use. This building was erected across the street from the main building on the site of the old Sixty-ninth Regiment Armory, which the Cooper Union leased from the city for a very nominal rental for a period of 100 years. The erection of two stories of this building allowed the construction of a number of specially planned science and technical laboratories, which were liberally furnished with machinery and apparatus representing the best modern and technical school practice. These laboratories include the following: electrical measurements laboratory, physics laboratory, materials testing laboratory, hydraulics laboratory, direct current and alternating current laboratories, steam and gas engine laboratory, instrument and auxiliaries laboratory, and a refrigeration laboratory.

Classes of 1935

THE CLASSES OF NINETEEN THIRTY-FIVE

CHEMICAL ENGINEERING

HAROLD I. ALBERT	President
KARL M. OLSEN	Vice-president
WILLIAM WEINTRAUB	Secretary
MORRIS KASHMAN	Treasurer

CIVIL ENGINEERING

FRANCIS E. KNIPPER	President
JOHN P. ROULETT, Jr.	Vice-president
JOHN B. HANNON	Secretary
EMMET G. HAPP	Treasurer

ELECTRICAL ENGINEERING

WILLIAM S. QUICK	President
SAM S. KORNBLUTH	Vice-president
JAMES E. COFFEY	Secretary
HERMAN K. FRANKE	Treasurer

MECHANICAL ENGINEERING

MICHAEL FEXAS	President
FRED W. SCHMIDT	Vice-president
ANTHONY DI PRIMA	Secretary
WILLIAM EHRLICH	Treasurer

INSTITUTE OF TECHNOLOGY

SAM SHOOR	President
FREDERICK SHAPIRO	Vice-president
MADELINE ROSS	Secretary
MICHAEL P. D'EILIA	Treasurer

ARCHITECTURE

S. MARTIN NOBLE	President
MICHAEL A. LISINICCHIA	Vice-president
HAROLD P. HESSELSOHN	Secretary
CHARLES C. WARD	Treasurer

PICTORIAL DESIGN

RALPH F. GOLD	President
JOSEPH PADEREWSKI	Vice-president
OSIAS SCHWARTZ	Secretary
EDWARD J. CURTIN	Treasurer

SCHOOLS OF ENGINEERING

HAROLD I. ALBERT, "Al," $\Pi\Sigma$, Chemical Engineering, New Utrecht High School; Class Pres. '33, '34, Pioneer '32, '33, Student Council '33, '34.

"Al" came to Cooper with the avowed intention of getting something more than a technical education, and judging from his work on the Pioneer and Cable he will probably embrace a journalist's career. "Al" is liked by everyone in the class—his being elected President by a unanimous vote testifies to that. His persistence and industry in his scholastic work qualify him for the upper bracket in the class standing.



CHARLES ARATA, "Skig," Mechanical Engineering, Stuyvesant High School; A.S.M.E.

"Skig" is one of the boys, who though married, works hard and gets his work done. He takes his studies seriously and keeps his interest largely in his profession as evidenced by his hobby—automobiles. The fine qualities of Charles should soon award him success in his profession.

ANDREW F. BARRY, "Andy," Mechanical Engineering, Tech, Harrison High School; Class Sec. '31, Class Vice-pres. '32, A.S.M.E., Math Club.

It was a fortunate day for his fellow students—ask him, he'll tell you—when "Red" Andy decided to pack his luggage and start his long trek to Cooper Union from the wilds of Harrison. His ready wit and cheerful personality have been a bulwark to his comrades in their darkest moments.



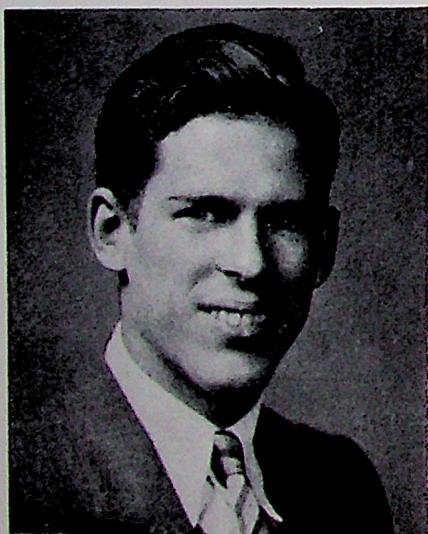
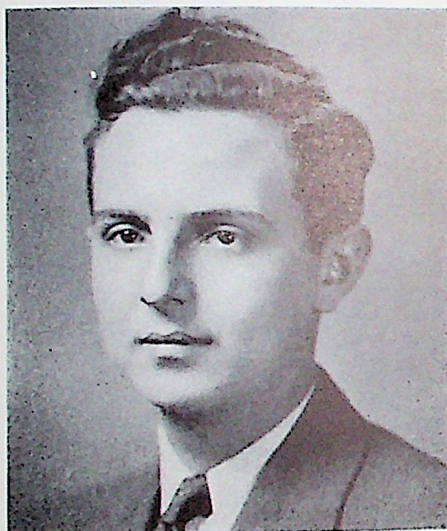


ROBERT J. BERGLER, "Butch," Electrical Engineering.

"Butch," called that for some reason unknown to his classmates, is the drafting wizard of the E. E. class. He can always be depended upon to come to the class with the advance plate almost completely worked out in detail. A good fellow to sit next to, not only for this reason, but because he possesses a good sense of humor and makes good company. Butch's present ambition is to get a job. May he have success in his search.

DANIEL S. BERRES, "Danny," Tech, Civil Engineering, James Madison High School; Math Club, A.S.C.E.

One of the most capricious boys in the Junior Class is Danny, and hence, the one who puts the spice in the ordinary life of his fellow students. Fortunately, he knows when to joke and when not to, and therein lies his popularity. At the same time he manages to keep well up in his studies. He is all wound up in his bridges; he has bridge for a hobby and usually takes it seriously.

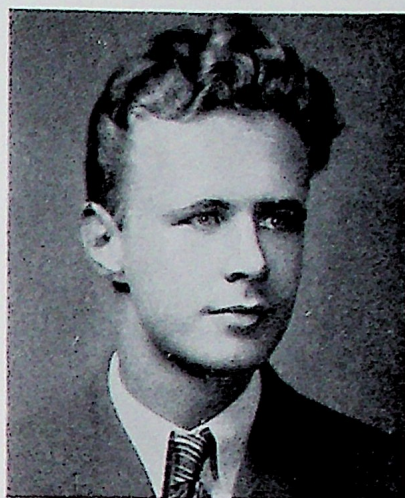


DAVID W. B. BIHLER, "Dave," Tech, Civil Engineering, Stuyvesant High School; Student Council '30, '31.

Dave is another quiet man who is capable of big things. He works hard at everything he attempts and does a good job. He can take a joke as well as the next fellow, and his good nature is his most prominent characteristic.

BERNARD JOSEPH BAECHER, "Bernie," Mechanical Engineering, Tech, Regis High School; Math Club, Rifle Club, A.S.M.E.

The poet, Sir Edward Dyer, must have been thinking of Bernie when he wrote:
 "His health is wealth and perfect ease:
 His conscience clear his chief defense;
 He neither seeks by bribes to please,
 Nor by deceit to breed offense:
 Thus doth he live, thus will he die;
 Would all did so, as well, or try."

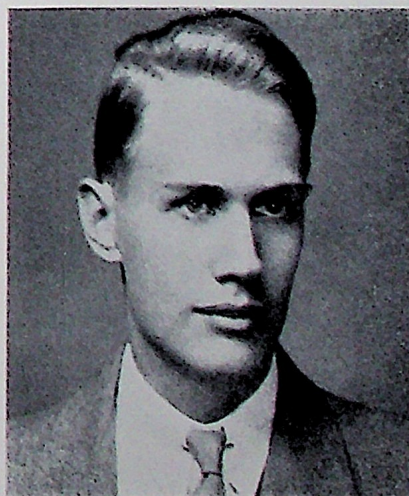


JOSEPH E. BOOK, "Joe," Civil Engineering, Tech, Evander Childs High School; A.S.C.E., Math Club.

Joe hails from the Bronx. He received the inspiration to study engineering from the wide open spaces of his home town. "Thar's gold in them thar lots," he said, and started out for Cooper Union. To date he has found no gold, but he's succeeded in all his studies.

ALLAN CASSELL, "Al," Civil Engineering, Brooklyn Technical High School.

One of the class twins. T'other is Frank Curtis. Try and keep them apart! It is rumored that Allan, a tall, handsome blond, is often met by a certain sweet young lady after class. Already, some engineering experience, Allan is well on his way to a successful career. When he graduates we can expect much from Al.



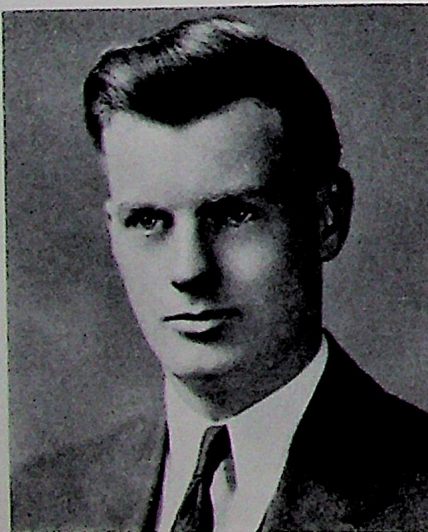
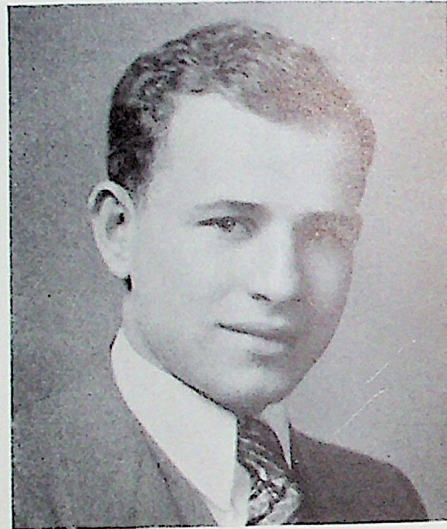


SAMUEL J. COHEN, "Sam," AME, Civil Engineering, Classical High School, Worcester, Mass.; Basketball '31-'32, Mgr. '34, A.S.C.E., C.U.A.A.

Sam hails from Massachusetts but is quite the cosmopolite. He has journeyed extensively the last few years, as manager of the basketball team and his amiable nature enhances his great popularity with the fair sex. Sam's executive ability should stand him in good stead in his chosen profession.

SOL COHEN, Mechanical Engineering, New Lots Evening High School; A.S.M.E.

Sol thinks his hobby is tennis, but the boys in his row know it is widely swung logarithmic curves—in action. Nevertheless his ambition, to be a Consulting Engineer, will be fulfilled if he continues to apply himself as diligently as he does here. He should succeed because he quietly minds his own business and aims at his goal.

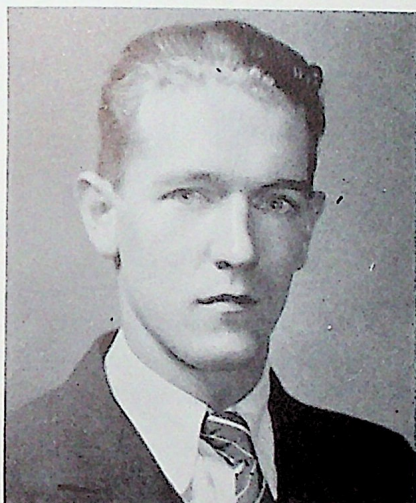
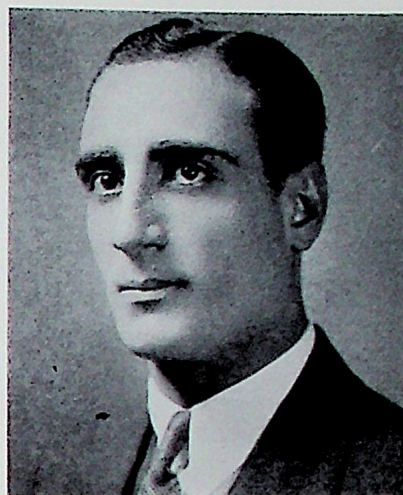


JAMES E. COFFEY, "Jim," ΦΣΩ, Electrical Engineering, Brooklyn Technical High School; Class Sec. '33, '34, Basketball '32, '33, Managing Editor of Cable '34.

Sunny Jim, he of the curved pipe and upturned hat brim; he of the soulful eyes, which blink every time he emphasizes any point of a discussion (they blink often) possesses one of the most serene and magnetic personalities. His penchant for classical (or worse) music and his precise memory, combined with his remarkable smoke-ring ability make him a conversationalist and entertainer of the first order.

JOSEPH FRANK COSTA, "Joe," $\Omega\Delta\Phi$,
Electrical Engineering, New Utrecht
High School; Class Treas. '32.

Joe is another one of the "Math Wizards" of our class. This, however, is not to be marveled at since by his own admission it is his favorite subject at Cooper. Joe also likes to play piano. Once a certain tune gets in his mind he plays it over and over again, much to the annoyance of his fraternity brothers. Regardless of this, Joe is well liked by both classmates and fraternity brothers alike. If he really wants to be a Math Instructor, we wish him success.

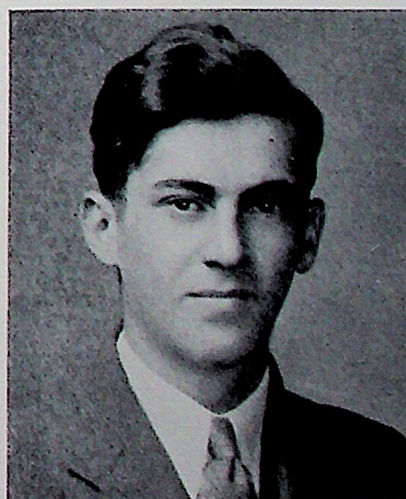


JOHN COUSE, "John," Mechanical
Engineering, Englewood High School;
A.S.M.E.

How John manages to amuse his wife with mechanics and hydraulics is more than we can see but maybe it is his homework in heat that amuses. Anyway, what is important, John keeps up in his work. John's executive ability and practical mind assure success for him in engineering.

ISADORE CORNACOFF, "Cornie,"
Chemical Engineering, Tech., Passaic
High School; A.I.Ch.E., Math Society.

A man who likes "The Last Round-up," or who goes around imitating Joe Penner, or who thinks Roy Atwell is a movie actor and Ed Wynn a dramatist, or who is "carrazy" about Mae West, or who likes to read the "Pie and Beer" and to listen to the "Engineers of Rhythm," or who throws chalk for a diversion, or whose hobby is gold mining, is Cornie.



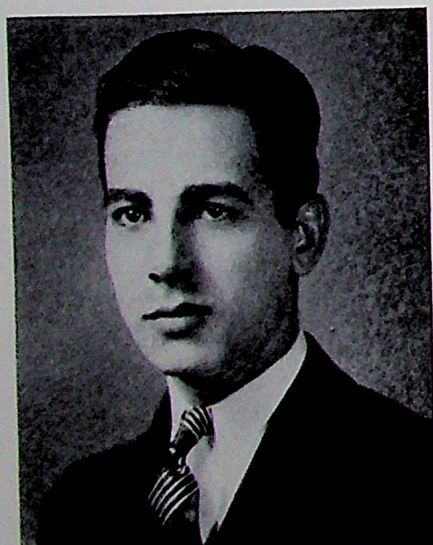
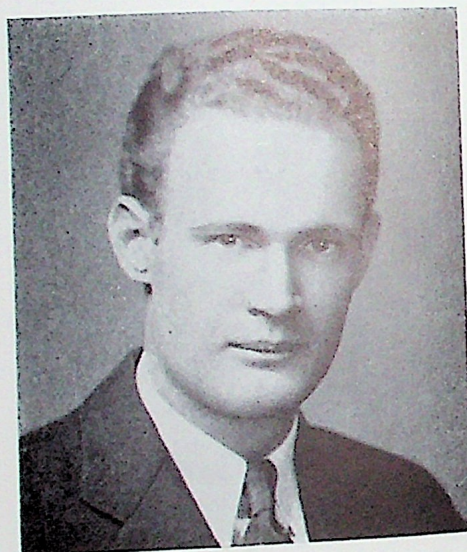


JOHN CROSBY, Mechanical Engineering, New York Evening High School; A.S.M.E.

His interest in the A.S.M.E. shows that John will follow his profession with an engineering mind. Although not active in extra-curricular work he is active in class, always doing the best work. Since his hobby is his profession, John can already be seen as an engineer of great enterprises.

FRANK CURTIS, Jr., "Frank," Civil Engineering, Bushwick High School, Boro Hall Academy; A.S.C.E.

The other of the class twins—t'other is Allan Cassell. A true Brooklynite—he spends his spare time gardening. This hobby of his should be valuable to him if later he goes to a jungle country to build railroads. At a school blackboard demonstration Frank shows calmness, ability and thought; three qualifications all good engineers must have. Certainly success is assured him.



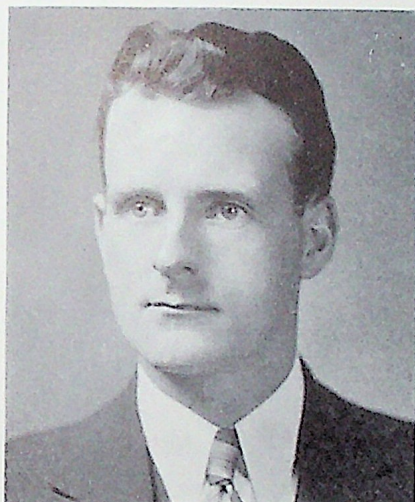
ANTHONY DI PRIMA, "Dip," Mechanical Engineering, Murray Hill High School; A.S.M.E.

Dip is one of our budding "boiler makers" who dotes on things mechanical. Being a quiet and retiring fellow much of his good work is liable to go by unnoticed. However, with the proper "breaks" we expect to hear much about Dip in the engineering field.

MILTON DUBIN, "Doob," Civil Engineering, Tech, Morris High School; A.S.C.E., Math Club.

"Nothing succeeds like success," says Milt, as he runs through his work like a house afire. It is this attitude that has won for him a scholarship and the popularity that he well deserves.

He prefers good-looking and intelligent women, but for some reason or other does not like them to be too good looking.



CHARLES DUFFY, "Charley," Civil Engineering, Brooklyn Preparatory School; A.S.C.E., Class President '32.

Meticulously neat, we have yet to see Charley without his hair combed. He is one of our few Civil Service employees still working (?) for the City. Though athletic, Charley does not find much time for hobbies because he is already blessed with those things we are all striving for—a City job and a wife. O.K., Mr. Duffy!

JAMES DUNCAN, "Jim," Civil Engineering, Paterson High School; A.S.C.E.

Duncan and his slipstick! In the first year we knew him thus. He looks up everything on his slide rule and usually finds it. A married man, Jim dares. He often challenges the surveying instructor while we root for him. Jim's experience gained during business hours, coupled with that which he gains evenings certainly fits him for ready success in his chosen career.



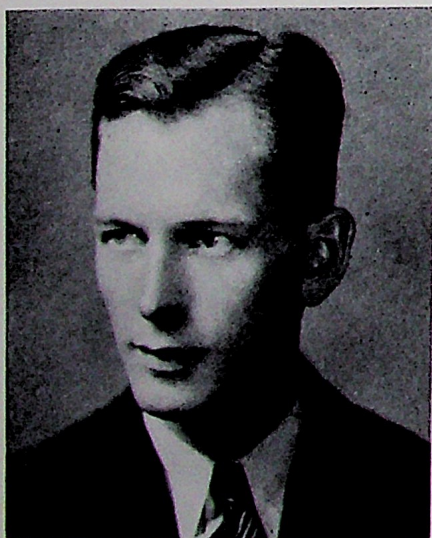
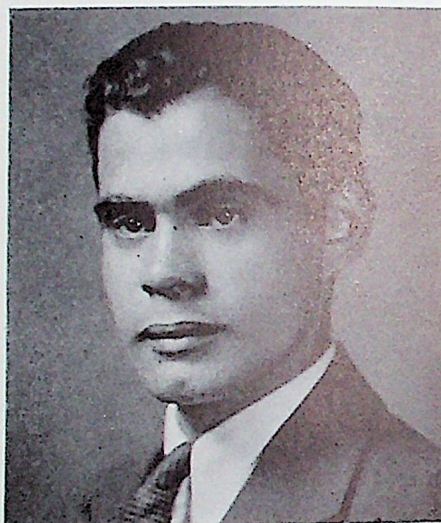


WILLIAM EHRLICH, "Rad," Mechanical Engineering, Boys' High School; Wrestling Team.

No, "Rad," didn't get his nickname at Union Square. He spends most of his spare time tinkering with children's toys—we feel the children of today will be looking up to "Rad" as the new Santa Claus of tomorrow, for his many toy inventions. As a diversion from things mechanical, he takes great pleasure in hiking through the country and enjoying nature's beauty.

SIDNEY EITELBERG, "Sid," Civil Engineering, Eastern District High School, C.C.N.Y.; A.S.C.E.

Sid is coldly frank when he admits his ambition is to become a millionaire. You are not going to give up your profession so soon, are you Sid? You'll make a good engineer. Sid is a consistent student. He gets his work done quietly, does well and causes no flurry in the class when his marks are read off. When Sid opens up his own office let's hope we'll all be there to wish him success.

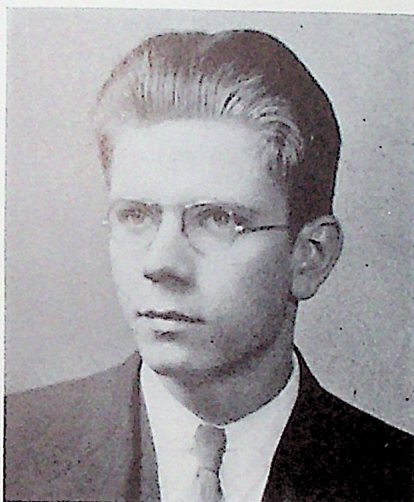
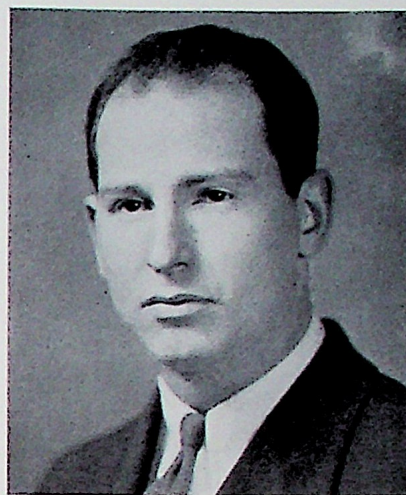


STURE O. EKSTRAND, "Eck," Electrical Engineering, Brooklyn Industrial High School.

A man who not only can carry a difficult technical course, but who also can find the time to attend most of the school and fraternal affairs at Cooper Union is a marvel. All this "stepping out" may be just the ground work for a career as a millionaire, as this is Eck's ambition. It is hard to become one in the Engineering field, but all who know Eck wish him lots of luck.

LEON EPSTEIN, "Leon," Electrical Engineering, De Witt Clinton High School; Track '32.

Leon Epstein is often seen in the company of Sid Kornbluth, with whom he makes up a team of first-class hairsplitters. Leon likes to know all about a problem and the various methods of solution before attempting to work it. For this reason his career in mathematics at Cooper has been quite successful. He has that quality of accuracy which makes for a good engineer and we predict a promising future for him.

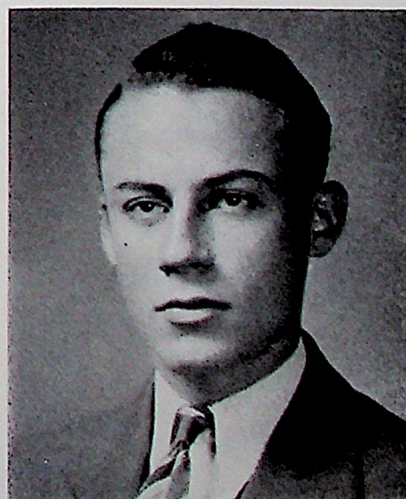


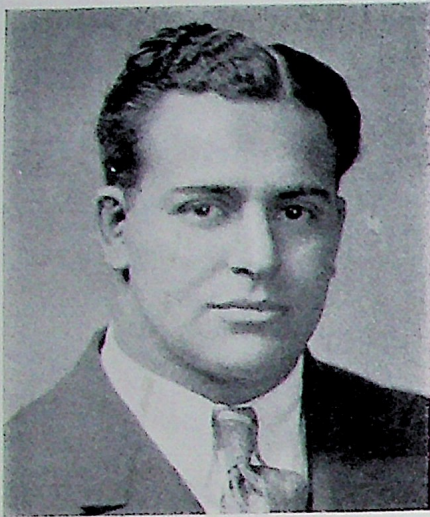
LEWIS EVANS, "Lew," Electrical Engineering, Tech.

None in the Junior Class is as cheerful or as hard working as Lew. That explains why he gets along so well in his studies and with his classmates. His cheerfulness is contagious and we wish it would remain with us, even when he is not around. Tell us, Lew, are stout fellows always happy because they are stout, or stout because they are always happy?

HARRY FARKAS, "Hank," Civil Engineering, Miami High School.

"Check-and-double-check," Hank is the hydraulic wizard. Of quick mind and good taste, Harry is always admired and asked for a view of his homework. But he is a moralist, and if those who asked graduate, they will thank him for making them learn by themselves and therefore master their knowledge.



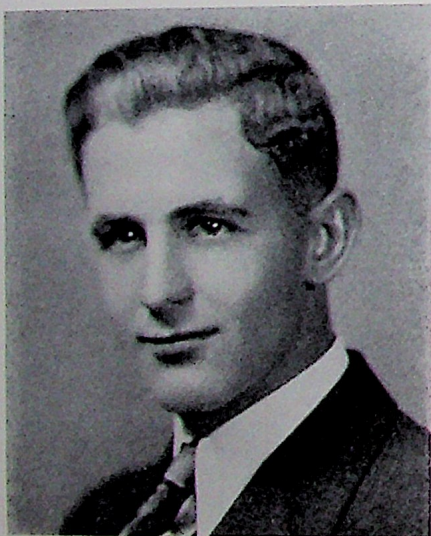


MICHAEL E. FEXAS, "Champ," Mechanical Engineering, De Witt Clinton High School; Class Pres. '34, Wrestling Team, Student Council, A.S.M.E.

"Champ" has been very popular on the wrestling team. We often wonder how he fares up so well in his exams, 'cause athletics seem to absorb most of his thoughts. He evidently believes in the future of aviation as shown by his eager interest in aeronautics. He is not at all cynical in spite of the fact that he reads Sinclair Lewis.

HERMAN A. FOLGNER, $\Omega\Delta\Phi$, Electrical Engineering, Murray Hill Vocational High School; Ch'rman Soph Dance Com., Sec. of Interfraternity Com., Business Chairman of Junior Prom '34, Cable Board '34, C.U.A.A., A.I.E.E.

Herman is what might appropriately be called, a Night Owl, because of the fact that for several years before entering Cooper he had been going to night school. He is a good organizer and one of the most popular men in the class. The success of last year's Class Dinner Dance can be traced to his fine efforts as Chairman of the Committee in charge of affairs.

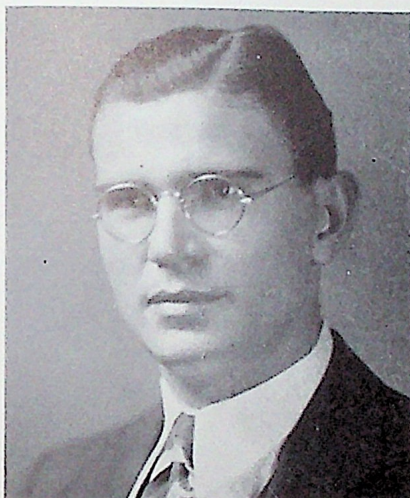
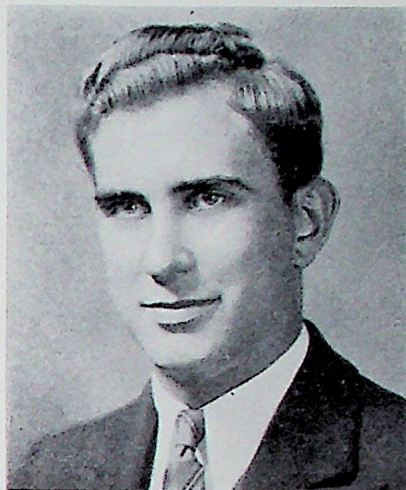


LOUIS FOLTAN, "Lou," Mechanical Engineering, Morris High School; Sec. A.S.M.E. '34.

"Lou" is a fellow with an "Edison" leaning. His ambition is not only to be a mechanical engineer but to be an inventor as well. This is a high goal and will require a tremendous amount of work. If his past record is any indication we feel sure that Cooper Union will boast about Lou's standing when he becomes an M. E.

HERMAN K. FRANKE, $\Phi\Sigma\Omega$, Electrical Engineering, Stuyvesant High School; Football '33, Class Treas. '34, Copy Editor of Cable '34.

Fair of hair and complexion, tall and well built, a man who combines a splendid appearance with a charming personality, Herman is one of the truly fine students in our class. Not content with just passing the various courses, he aims for the highest grades. Aside from his enviable school record, Herman is not unwilling to take part in outside activities, which is why he is so well liked by all his classmates.



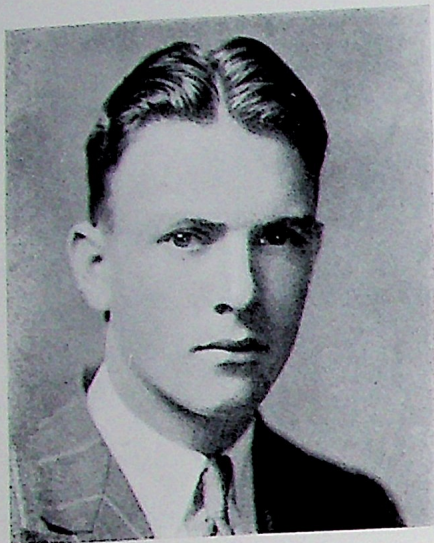
LOUIS H. GARTELMANN, "Lou." $\Phi\Sigma\Omega$, Electrical Engineering, James Monroe Evening High School.

A tall, well built, and active man with an everlasting smile personifies Lou. His outstanding ability to secure reliable information in his school work, makes Lou a dependable and companionable student. There is no doubt that his ambition toward the advancement of television will result in his recognition as a foremost engineer.

JOSEPH GLADSTONE, "The Duke." AME, Chemical Engineering, Tech, Stuyvesant High School; Treas. A.I.Ch.E., Math Club.

With boundless energy and no ends of ambition, Joe came to Cooper Union in '31, and now, in '34, three years later, we find that he has not changed a bit. Plenty of exercise in between study periods seems to be the secret of his success, and no matter where he is or what the circumstances, he must have his little work-out. Well, if it will win us a scholarship, too, we'll go in for that sort of stuff ourselves.





CLAUDE A. GOMEZ, "Smith," Mechanical Engineering, Cliffside High School; A.S.M.E.

Smith is another of the famous "Smiths" of the M. E. Class. He started Cooper in the Day School but being a lover of hard work(?) decided to enroll in the Night School. As a power plant expert he has no equal. In a discussion on steam, he can generate more of it than the largest marine boiler ever built.

BORIS M. GOUGUELL, "Barney Google," Chemical Engineering, Tech, De Witt Clinton High School.

Boris has come all the way from Russia to study engineering, though his speech has but the slightest taint to give him away.

Serious, honest, and conscientious to the nth degree, he is one of the most brilliant men in the Junior Class. No matter how difficult the problem is, no matter what the subject, Boris finds a solution.

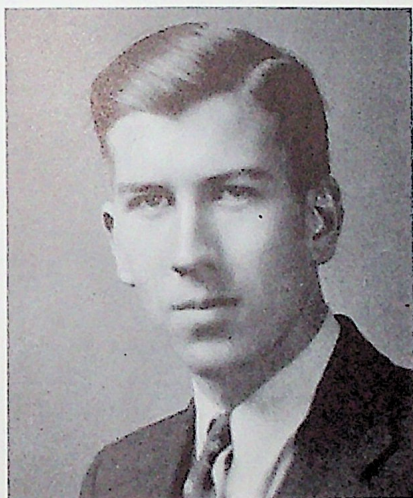
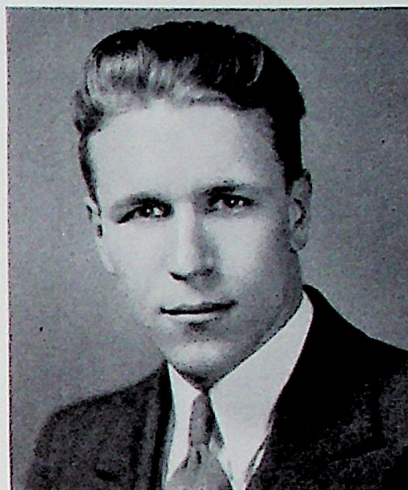


WALTER EUGENE GRUTZNER, "Walt," Electrical Engineering, Manual Training High School.

Short, snappy, and full of pep, characterizes Walt. About the time you think this completes the picture, you are startled by one of his novel and highly original ideas or clever solutions. While he talks tennis and music, his ballroom technic has often been admired.

JULIAN F. GUDEL, "Jules," Civil Engineering, Brooklyn Technical High School; A.S.C.E.

Calm, cool, and collected describes Jules. One would think that Jules was the most studious pupil at Cooper but there are two sides to every story. Jules finds much time for romping through the wilds of Prospect Park (alone), and absorbing nature's beauty. This probably accounts for Jules's fresh memory in class whenever he is called upon.



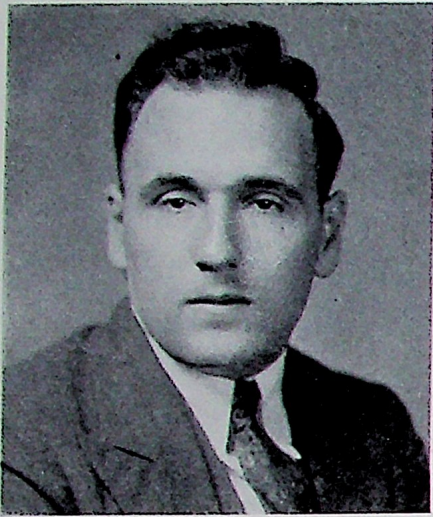
JOHN B. HANNON, "Jack," ΦΣΩ, Civil Engineering, Brooklyn Preparatory High School; Class Sec. '34, A.S.C.E., Newman Club, Junior Prom Com.

Jack, although quiet, has hidden depth of feeling. From his Irish forebearers he inherits a love of hunting and fishing, which his natural reticence keeps him from revealing to most people. The "stick-to-itiveness" which he displays in all his endeavors makes it certain that he will achieve his great ambition of becoming a successful civil engineer.

EMMET G. HAPP, "Garry," Civil Engineering, ΦΣΩ, Port Jervis High School; Class Vice-pres. '31-'32, Class Treas. '34, Asst. Mgr. Track '31, Mgr. '32-'33, C.U. A.A., A.S.C.E.

"Garry" is the class nimrod and quite a few eight point bucks have fallen due to his prowess with a rifle. Already possessing a State Land Surveyor's License, he is well on his way to a successful career in engineering.





WILLIAM SUMMERVILLE HAYES, "Bill," Electrical Engineering, Maitland, Nova Scotia.

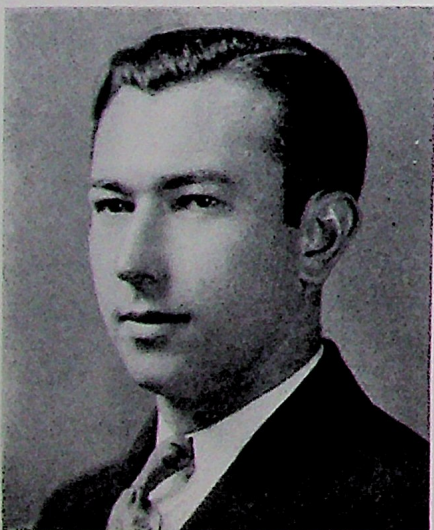
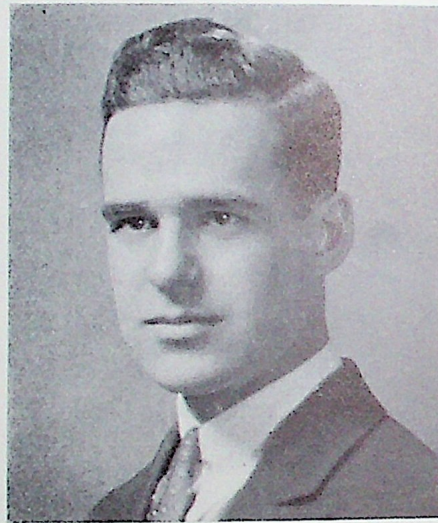
Bill, a native of Nova Scotia, is one of the hardest working men in the class. This is easily understood, when we find that his hobby is Electro-Dynamics, a subject which caused much "weeping and gnashing of teeth" among the E. E.'s last year.

Being a quiet and reserved fellow he surprised the whole class by embarking on the Sea of Matrimony shortly after the school year began. Bon Voyage, Bill.

FRED HERMAN, Electrical Engineering, Mount Vernon High School.

It doesn't seem as though anything can wipe the smile off Fred Herman's face. His beaming countenance stands out in every class he attends. A pleasant personality and a friendly spirit prove that the smile is genuine.

Fred's hobbies are fishing and radio, two rather distinct pursuits. His shyness and dislike of talking about himself, however, prevent him from becoming a member of that famous society, "The Tall Story Club."



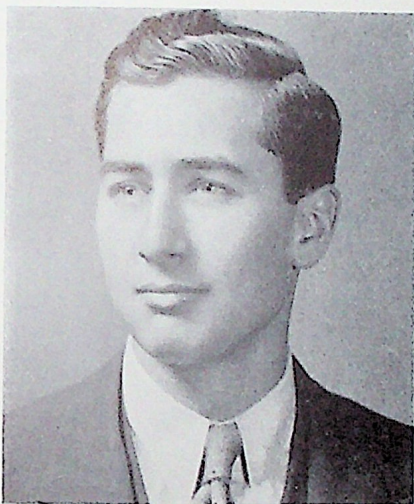
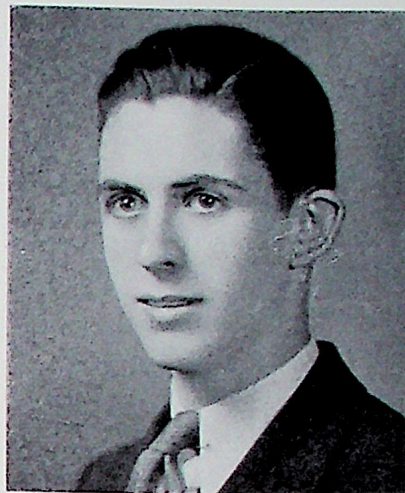
ISADORE HORBUND, "Bunny," Mechanical Engineering, Bushwick High School; A.S.M.E.

Bunny traveled almost the length of the continent to complete his course of study at Cooper, his home town being Omaha, Nebraska. We suspect he still retains a secret longing for the wide open spaces, his favorite song being "The Last Round-up." Bunny is another of those amateur photography fiends. He is often found at Times Square hunting interesting studies! Keep it up, Bunny, you may snap the tall dark lady one of these days.

STANLEY J. KAPLAN, "Stan," Chemical Engineering, Tech, James Monroe High School; A.I.Ch.E., Math Club, Glee Club.

Stan is different. He is one fellow who has found a girl who can type and who is willing to help. Relatively, Stan has been living a life of ease these past few months, as a result.

It seems as if his greatest ambition is to become a conductor, for he is dying to tell some of his instructors where to get off.



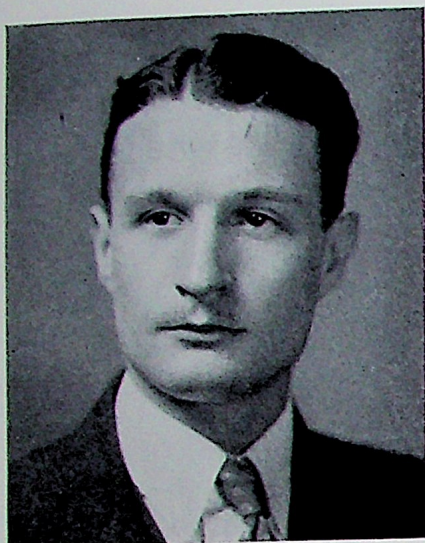
SEYMOUR KIVO, "Keev," Mechanical Engineering, Hebrew Technical Institute; Track Team '32, '33.

The class dignitary, "Keev" can't be fooled. He is of the cold-blooded executive type, but a good reliable friend. It won't be surprising to find Seymour directing the mechanical installations in large buildings a few years after he graduates. More power to you, Seymour.

WALTER C. KLUTZ, "Klutz," $\Omega\Delta\Phi$, Electrical Engineering, Yonkers High School; Cable Photo Editor '34.

"Klutz" is the hardest man in the class to find. He is a hard worker which probably accounts for this. The class knows him best as a demon pianist. This is not stated in a derisive manner as his ability has been amply demonstrated at several class affairs. Outside of school "Klutz" directs an Orchestra.





FRANCIS E. KNIPPER, "Knip," ΦΣΩ,
Civil Engineering, Brooklyn Prep, N.Y.
U.; Business Mgr. Cable, Pioneer Com.,
Sec. Student Council; Class Treas. '33,
Class Pres. '34, A.S.C.E., C.U.A.A.

Knip is one of our most active students and has a reputation of getting things done without causing a furore. Though somewhat reticent, he nevertheless is successfully holding down some of our most important jobs and still finds time to be an excellent student.

EMIL JOSEPH KOCHMAN, Jr.,
"Kochie," Civil Engineering, Stuyvesant
High School; A.S.C.E.

Our honor man. Last year "Koch" won a money prize with four A's. He is most dependable; when "Kochie" says anything is so—it must be so. Out surveying one day, he was asked for his result by the instructor. "That's good," said the instructor, "Good, why it's perfect" he answered. It can safely be said that our "Emil" will some day be a great engineer.



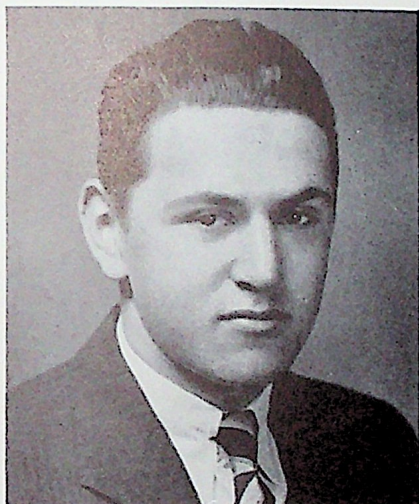
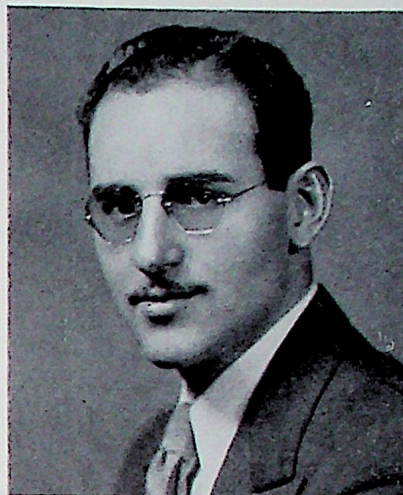
JOEL KOEHL, "Jehol," Civil Engineer-
ing, Alexander Hamilton High School;
A.S.C.E.

One of our truly individualistic lads, Joel pursues his courses steadily and easily. When Joel thinks he is right, one must show him a watertight mathematical proof before he will consent to change his ideas. Watch Joel after he graduates, he has all the qualities of a great Engineer.

SAM S. KORNBLUTH, "Sid," Electrical Engineering, Eron Preparatory School; Class Vice-pres. '33.

Sid came back from his summer vacation this year and broke the news of his marriage. This step bids fair to seriously hamper the activities of the team of Kornbluth and Epstein, hairsplitters extraordinary.

Sid is in the grocery business and works very hard to bring home the groceries for his little lady.



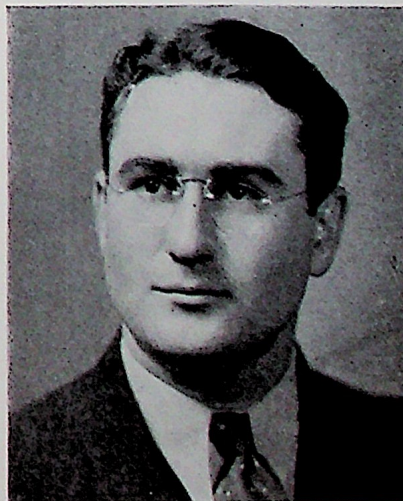
LEONARD KROLL, "Len," Mechanical Engineering, New Utrecht High School; A.S.M.E.

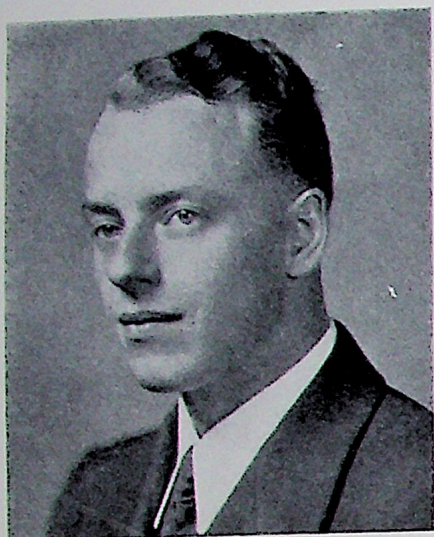
One of our younger men, Leonard is quietly making his way toward a secure position in his chosen field—aeronautical engineering. We know just when he is building a new model plane: when he asks to see the completed homework. Then he only checks up. Aeronautical engineers are needed. Certainly Len will be one of our best.

WALTER F. KUDAK, "Walt," A.S.E., Civil Engineering, Tech, Linden High School; A.S.C.E., Math Club.

Walt is more than just another big Jerseyite, swelling the ranks of Cooper students. He is here to learn all about what a good consulting engineer should know, and when he finds out he'll decide what else he wants to learn about.

He actually likes to study — a rare specimen, indeed—preferring that to his other hobbies.





WALTER F. KUGEL, "Curly." Chemical Engineering, Hindenburg-Oberreal Schule.

"Curly" Kugel has an extensive knowledge of a variety of subjects, but he believes that a specialization in one or two courses is more desirable. Therefore, he is majoring both in chemistry and femineity. Possessed of a happy smile and a genial disposition, "Curly" is both liked and admired by his classmates.

ALBERT W. KUMERDANK, "Al," $\Omega\Delta\Phi$, Civil Engineering, Tech. Manual Training High School; A.S.C.E., Math Club.

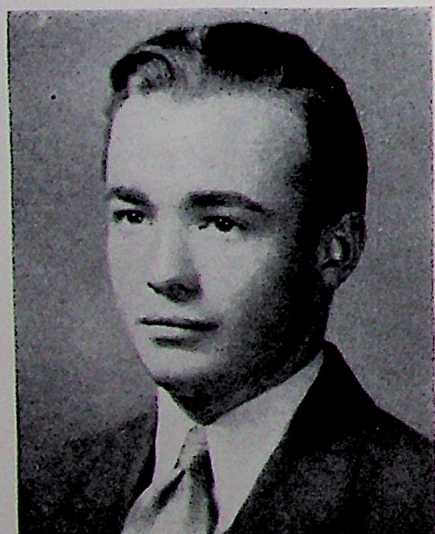
To be a decent engineer is Al's greatest ambition, and he is well on his way towards its fulfillment by starting off as a decent student.

He is a quiet fellow who uses his time to good advantage and by plugging hard is always well up in his work. Nevertheless, he is always ready to lend a helping hand to the more needy.



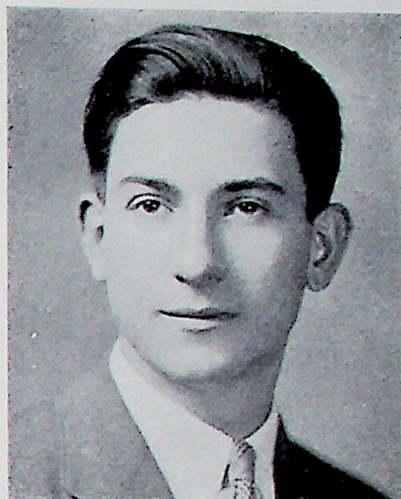
THOMAS C. LEHNING, "Tom," $\Omega\Delta\Phi$, Electrical Engineering, Tech. Bishop Loughlin Memorial High School; A.I.E.E., Rifle Club, Newman Club.

Tom is one of those fellows you seem to know all about, but when it comes to putting it on paper you find yourself at a loss as to what to say. He is a little fellow, but good things come in small packages. Quiet and cheery, he goes about his own business with energy and perseverance, and has the courage and ambition to follow through.



ROBERT K. LEON, "Bob," Civil Engineering, Boy's High School; Basketball '34, A.S.C.E., C.U.A.A.

Though Bob's favorite drink is milk, he certainly is a regular fellow. Quiet, soft spoken, he is every inch a gentleman, though a somewhat rough one on a basketball court. Every one who comes in contact with Bob likes him, and we know he has all kinds of well-wishers for a successful engineering career.

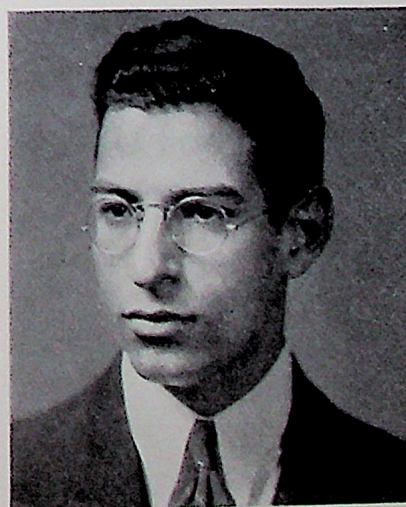


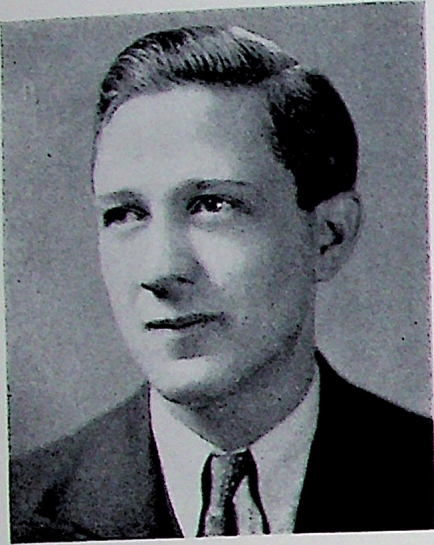
SIDNEY C. LEVEROCK, "Syd," Civil Engineering, Harrison College, Barbados, British West Indies.

Syd came a long way to go to Cooper Union, so he didn't waste any time when he got here. He always has his work prepared in advance, and is a good student, a credit to Cooper Union, and with excellent prospects of becoming a successful engineer.

LOUIS LEVINE, "Lou," Tech, Electrical Engineering, Franklin K. Lane High School; Math Club '32, '33, '34, Rifle Club '34.

Another bridge fiend is Lou, but he actually is a good player and that differentiates him from some of the other lunch room players. Next to being a good bridge player, he wants to become an electrical engineer. If he can connect electrical apparatus as well as he plays cards, Lou will be a success.



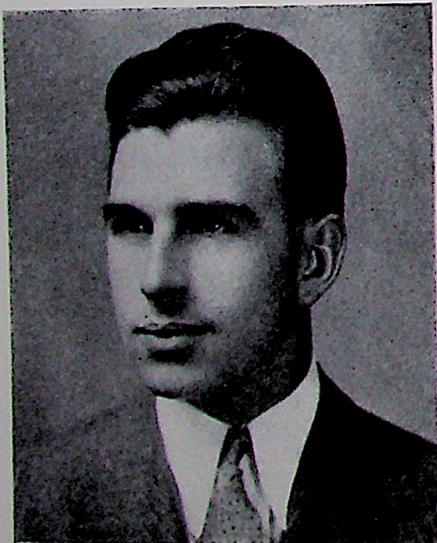


IRVING D. LEWIS, "Irv," Civil Engineering, High School of Commerce; A.S. C.E.

Obliging, Irv can be depended on to work out any problem that swamps the boys. The feeling of the class toward this good fellow is that they would do anything for him. "Success in engineering study is based on hard work," he says, and is certainly striving to prove his contention.

EMANUEL M. LINDHEIMER, "Lindy," AMΣ, Electrical Engineering, Hebrew Technical High School.

A tall, dark haired fellow, sporting a mustache and a derby gives you a picture of Lindy as he comes into view. He is one of the fellows who helps make E. E. class meetings so interesting. The reason for this is that his hobbies are arguing and debating. These hobbies ought to aid him in realizing his future ambition to be a research engineer. It is a high goal and we wish him the best of luck.



LOUIS J. LONG, Electrical Engineering, Grand Lake Stream High School, St. Johnsbury Academy.

Louis Long, our Yankee classmate, is another benedict. Witness the way he makes tracks for home immediately after the last class each night.

Once Louis attended a class meeting and some of the boys tried to make him President. This seems to have scared him away. He evidently wants to leave the field of politics clear for Huey.

JOSEPH LOVAS, "Silent Joe," Chemical Engineering, $\Omega\Delta\Phi$, Cathedral Prep; Class Vice-pres. '30.

"Silent Joe" is one of the most industrious members of the Chemical section. Always anxious to learn and always asking for more details about a subject. Joe bids fair to do very well in the business world upon graduation. This would certainly be a splendid reward for one who has endeavored to obtain so thorough an education.

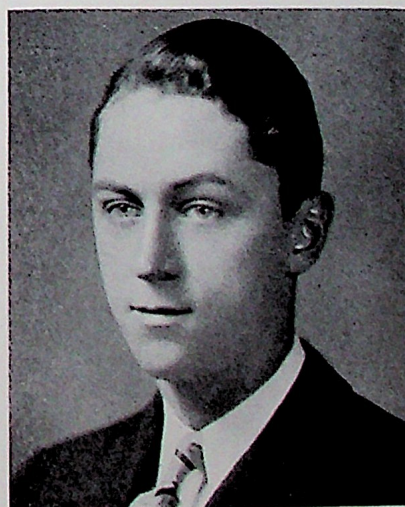


JOHN BYRON MAYER, "J.B.," $\Phi\Sigma\Omega$, Civil Engineering, Stuyvesant High School; Treas. A.S.C.E., C.U.A.A.

Presenting one of our brilliant minds; even Hydraulics was easy for J. B. He claims his favorite pastime is the study of Physical Anthropology, but any one of his intelligence could successfully claim anything. J. B. is a regular fellow nevertheless, and we shall doubtless hear more about him.

JOHN J. McMAHON, "Jack," Electrical Engineering, Morris High School; Newman Club.

No joke too subtle, nor witticism too sharp escapes this man of the laughing eyes. He thrives on excitement and gaiety, belying his sometimes serious mien. His vices include a passionate interest in aviation, blondes and dancing. A confirmed cityite, his pointed remarks about suburbanites drive those poor commuters to cover. The stage or the bar (in the judicial sense) lost a great exponent when Jack took up engineering.



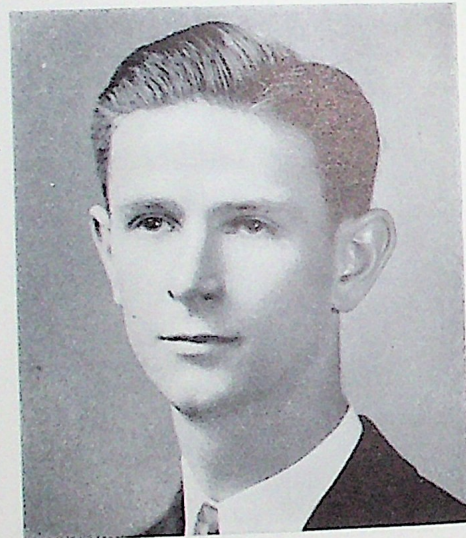


JACK I. MEDOFF, Chemical Engineering, Tech.

Don't let the mustache be misleading, folks. Jack is a good fellow at heart, and not at all the class villain. In fact, he is quite popular with his classmates. Besides, he is a scholar and a gentleman, which is saying a lot. Mixed all together, these characteristics react to yield a magnetic personality, one which ought to lead Jack on to bigger and better things.

GERMANO MENDIZZA, "Jerry," Civil Engineering, Curtis High School; A.S. C.E.

Jerry has one of those keen analytical minds that demand proof for anything that is presented to them. Though employed now, Jerry has keen ambitions of acquiring what he terms "a good job." A good student, Jerry's wish will doubtless be fulfilled in the near future.



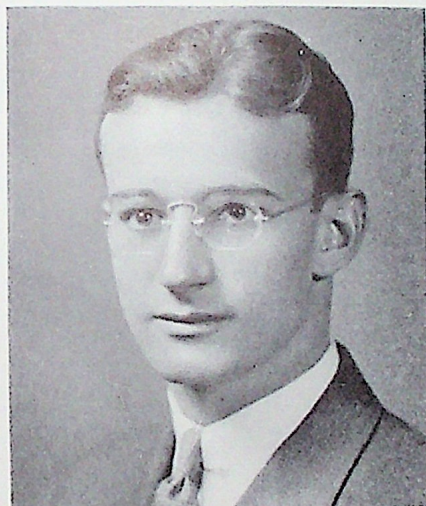
JACK MOFENSON, "Stretch," Civil Engineering, Tech, Manual Training High School; Basketball '33-'34.

Jack is one of the exceptions to the rule that good things come in small packages. He is the tallest and also one of the most popular men in the Junior Class — outstanding in more than size.

Serious and energetic, he manages to get along well in his studies and still finds time to participate in athletics.

MICHAEL MUZELAK, "Mike," Civil Engineering, Stuyvesant High School; A.S.C.E.

Meet our class hobo. Don't get us wrong, though, we're not referring to Mike's inaptitude for work. Anyone who attends Cooper at night disproves that. We are referring to Mike's numerous hitch-hiking activities. Last summer, for instance, he reached the Pacific Coast. Mike is no doubt preparing for the future, when he will be a full-fledged C.E.



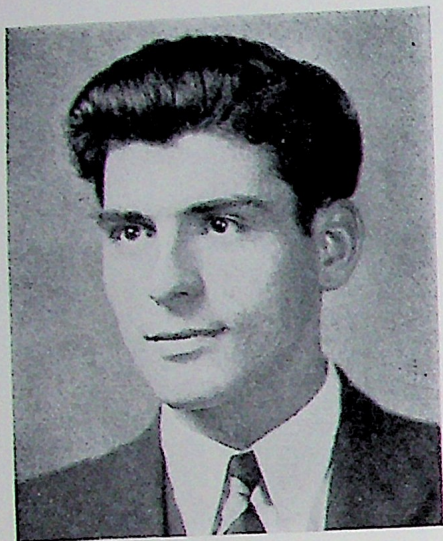
GEORGE NAGOSHINER, "George," Mechanical Engineering, James Monroe High School; Track '31, '32, '33, A.S. M.E.

At every prom or hop, George vanished and was always discovered in a hidden dark nook with a certain young lady. He is a very sociable engineer. Besides getting his work done in true engineering style George finds time to be the sensation of our track meets. Stout-hearted George promises to soon be one of our able alumni.

ARTHUR J. NELSON, "Arty," Mechanical Engineering, Port Richmond High School.

"Arty" is a very fortunate individual. He not only finds time for his studies but gets forty minutes of good music on the Staten Island ferry boat daily. Arty's future ambition is to be a consulting engineer. We feel sure he will reach this goal. Whenever he is among the missing he can be found in the corner of some room poring over a deep problem. Best of luck to you, Arty. "Silence is Golden."



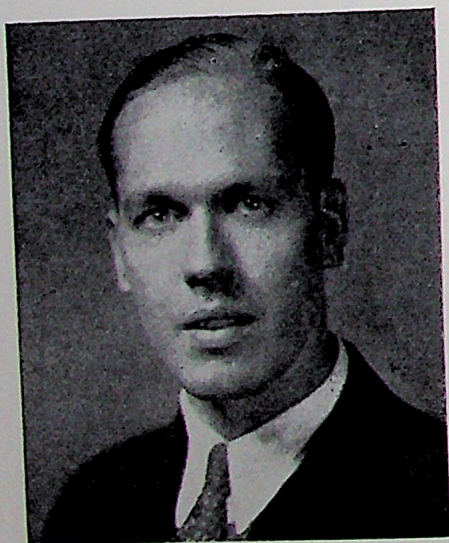


ANTHONY J. NESTI, "Tony," ΦΣΩ,
Civil Engineering, Perth Amboy High
School; Track '31, '32, C.U.A.A.

Another one of our quiet classmates. Tony comes from Jersey, but we'll let that pass. Athletically inclined, he names Tennis as his favorite sport, but just at present is tied down with a job that keeps him busier than the proverbial one-armed paper hanger. Good luck—Tony!

OTTO OFFT, Electrical Engineering,
Husum, Germany.

Picture a man of infinite patience and tenacity, a man who has a great capacity for friendship and the helping of his less talented fellow student. Otto is that sort of a man. Because of these qualities, he is one of the best liked fellows in the class. He also has the distinction of being the only one in the class who can write his first name backward on an exam paper and get away with it. However, in all seriousness we expect Otto to become a success in the engineering field.



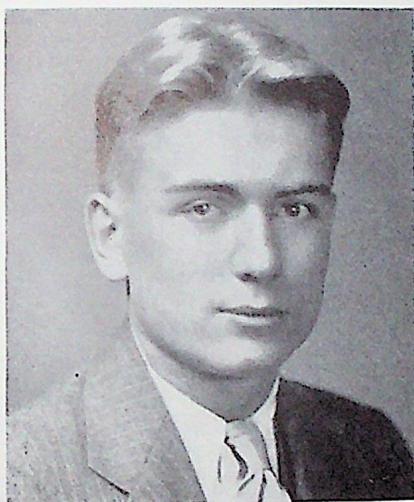
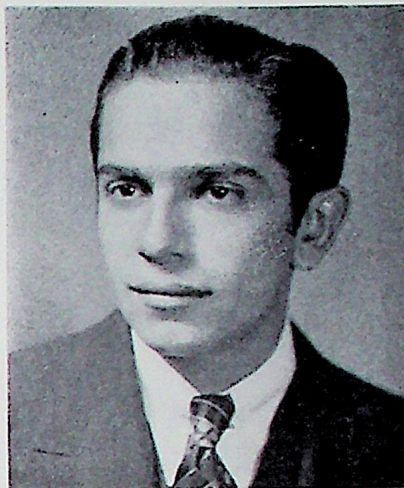
KARL M. OLSEN, Chemical Engineer-
ing, Manual Training High School; Class
Vice-pres. '34.

Karl is the sort of a student that every prof wants for a student and every student wants for a friend. Energetic, studious, helpful and not easily discouraged, he enjoys every hour spent at Cooper.

Employed by Bell Labs. as a metallurgist, his favorite subject, hobby and diversion is metallurgy.

DOMINICK V. PAOLILLO, "Dom,"
Civil Engineering, Manual Training High
School; A.S.C.E., C.U.A.A.

A numerologist and card shark, Dom is also athletic, though he certainly likes to sleep. That is probably the foundation for the rumor that Dom let his baby do his hydraulics. During the summer Dominick does a "Red Grange" on an ice wagon which accounts for his "brawn." A regular fellow, Dom has many friends and will acquire many more.



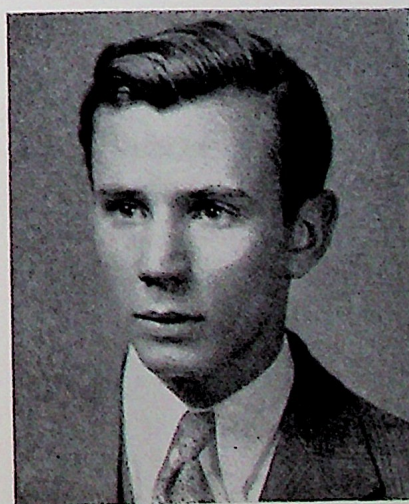
CHARLES J. PAVLACKA, Chemical
Engineering, Tech.

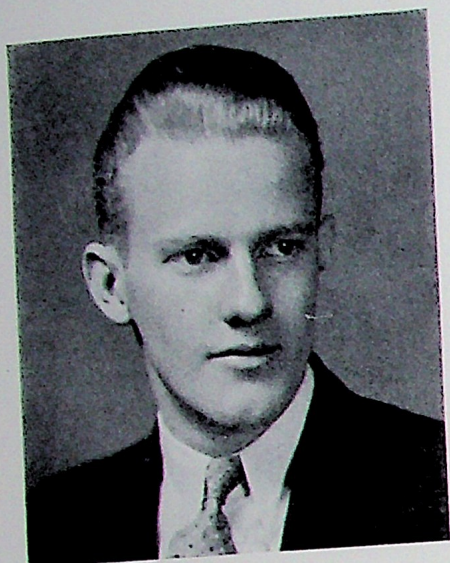
Charles manages to get along well in his work and also to see that his friends do, too. He is a quiet, conscientious chap, and one who will go far in his chosen profession, if he applies as much energy to it as he does to his studies. Whether the problem be chemistry, physics, or plain mathematics, give it to Charles, if you want it done.

LEONARD E. PENSO, Civil Engineer-
ing, Tech, St. Francis Xavier High School;
A.S.C.E., Math Club.

Leonard is one of the most serious-minded chaps in the Junior Class. Reliable, dependable, he has never been known to be late in any matter.

He wants to become a marine engineer and naval architect, and his favorite hobby is yacht racing.



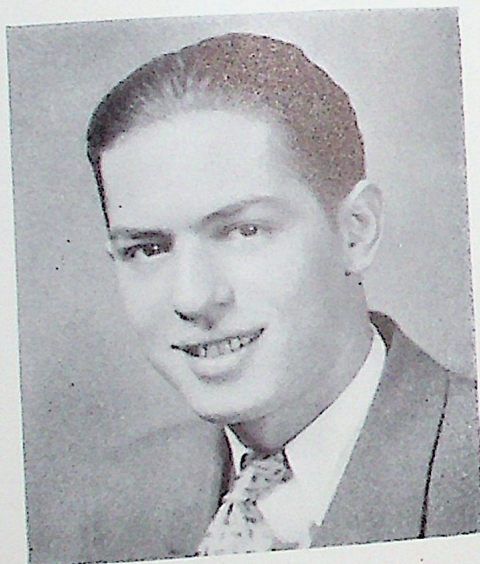


EUGENE A. PETTERSEN, "Gene,"
Civil Engineering, Cranford High School;
Track '32, '33, A.S.C.E., C.U.A.A.

Gene is one of our good looking young men from Jersey. A regular fellow, he likes ice skating and swimming, and will indulge in them at the first opportunity. Gene is O.K. scholastically and should go far in his chosen profession.

MURRAY PISETZNER, "Pizzy," AMΣ,
Chemical Engineering, Tech, Textile High
School; Vice-pres. A.I.Ch.E., Math Club.

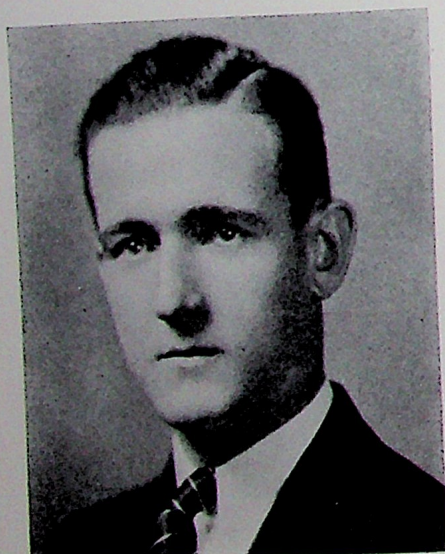
"East Side, West Side!" Just another New Yorker making good. Murray is halfway through Cooper Union, and with pretty good marks, though the exams at the end of this year will tell their little story. But if hard work and perseverance ever helped anyone, Murray should come through better than ever.



GERARD JOSEPH PLUNKETT,
"Jerry," ΔΣΚ, Civil Engineering, Tech,
Boys' High School; A.S.C.E., Newman
Club.

Straightforward, frank, and fearless, Jerry is very popular among his classmates.

Jerry's favorite sport is football and he carries the spirit of the gridiron into his studies.



WILLIAM S. QUICK, "Bill," Electrical Engineering, Westfield High School; Class Pres. '32, '33, '34, Entertainment Com. '33, Chairman Junior Prom '34.

Any man who has been President of his class for three consecutive years must possess those qualities which are characteristic of all leaders. Such a man is Bill. Although an excellent student, Bill prefers to play basketball, or just smoke his pipe and spin yarns with his classmates, than study. However, we feel that his remarkable personality combined with his technical ability should advance him to the top in the engineering field.



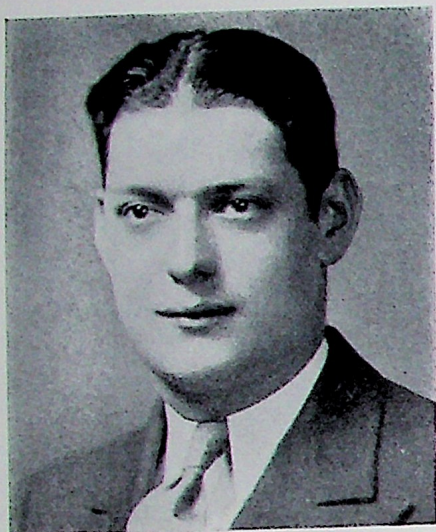
MARVIN H. RASMUSSON, "Prof." Chemical Engineering, Manual Training High School.

Here is an enigmatic character. Inclined to the philosophical, mildly cynical and a master of subtle as well as satirical expression. Impressive, meticulous and methodical in his habits, featuring a self possession and control with which latter properties he inspires his associates.

WILLIAM P. REUSS, "Bill," ΦΣΩ, Civil Engineering, Union Hill High School, Cooper Union School of Architecture; Class Sec. '31, Treas. '32, Pres. '33, Editor-in-Chief '34 Cable, Asst. Mgr. Track '33, Annual Com. '33, Student Relations Com. '33, Class Dinner Com. '33, Gold "C" Award '33, Silver "C" Award '34, Chairman Ex Post Facto '34, Junior Prom Com. '34, C.U.A.A., A.S.C.E.

Because modest Bill would not allow us to proclaim his virtues, this had to be inserted after the editor's O.K. Despite an active interest in all extra-curricular activities, Bill has a high scholastic record. His sincerity and his friendliness have won him a host of friends.



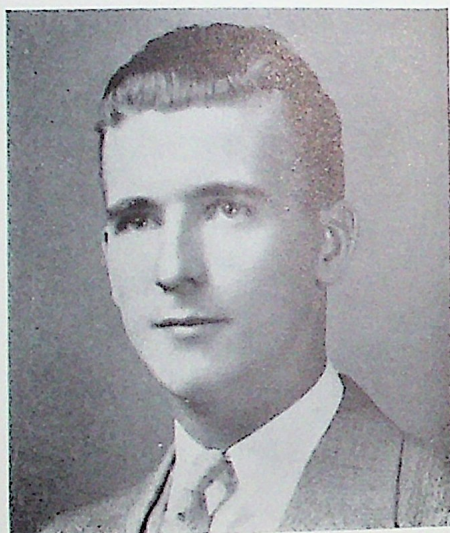


PHILIP RINGEL, "Phil," Civil Engineering, Seward Park High School; Wrestling '32, A.S.C.E., C.U.A.A.

Our class math shark. Phil's favorite indoor sport is telling the instructor that he's wrong. Sometimes he is right (Phil we mean). Possessed of a sense of humor, he is well liked by all those who know him and has many well-wishers for a successful career.

GUSTAV A. ROSEN, "Al," Chemical Engineering, Manual Training High School.

Beneath this cold English exterior, entrenched within a personality at once provocative yet confidence-inspiring, there exists the spirit of the true man of science. Gustav has all thoughts and actions directed toward a goal of scientific achievement in the near future.



JOSHUA A. ROSS, "Josh," Civil Engineering, Tech, Manual Training High School; Basketball '34, A.S.C.E.

Josh is a man to be taken seriously, for he has held his scholarship for three years. Always full of pep, he puts his entire energy in the matter of the moment, and always comes through with flying colors. His favorite hobby is stamp collecting; and of the arts he prefers music, drama, and literature. He is the type of man one would desire to call one's best friend.



MADELINE ROSS, "Betsy," Chemical Engineering, Tech, Washington Irving High School; Class Sec. '33, '34, A.I. Ch.E., Math Club.

Here's something, men! For two years the only feminine student in Tech and she likes it. Ambitious? We'll say! She travelled all the way from Budapest to Astoria to acquire knowledge at Cooper Union. Her favorite course of study is graphite analysis, but her one and only hobby is borrowing pencils.



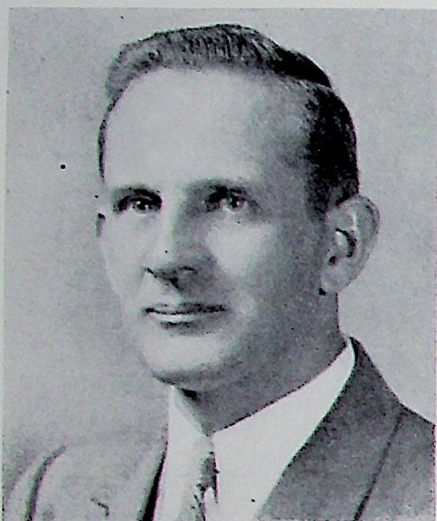
JOHN PATRICK ROULETT, Jr., "Pat," ΦΣΩ, Civil Engineering, Manhattan Prep., Bryant High School; Basketball '31, '32, '33, '34, Baseball '33, Class Vice-pres. '33, '34, C.U.A.A. Treas. '34, Junior Prom Com., Cable Sport Editor, Class Dinner Com., '33, A.S.C.E.

The leisurely Pat, with the inquisitive eyebrows surprises one and all by being one of Cooper's outstanding athletes. Although Pat's ambition to retire early would indicate an ease loving nature, his scholastic record so far forecasts a successful engineering career.

EMIL J. SARANIERO, "Emil," Civil Engineering, Plainfield High School; A.S. C.E.

School is no drudgery to Emil. Though a Benedict for a number of years he actually likes to do school work. He usually does every problem in the book and then some. Where he got the time to do all this was always a mystery until we found out he works for the city. Emil is always ready to help any one out and has our best wishes for a successful career.



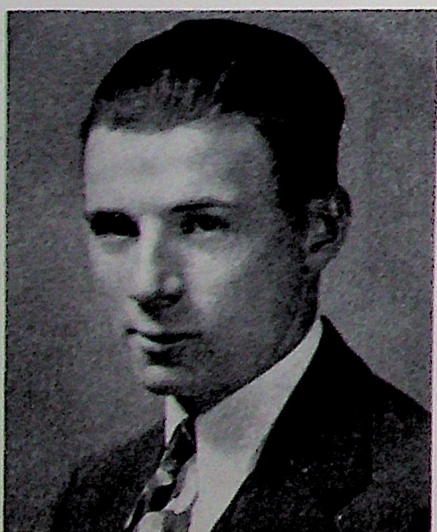


WILLIAM SCHMELZER, "Bill," Electrical Engineering, Ludwig Ober-Real-Schule.

A sincere, earnest, hard worker who takes his schooling seriously and evidently intends to go far in his chosen vocation of E. E. Hailing from Ludwig Hafen, Germany, his taste naturally runs to fencing and Goethe. However, true Americanism is shown in his choice of Joan Crawford as his favorite movie star, and Paul Whiteman's Band as his favorite orchestra. Quiet and reserved, Bill says little, but nothing that goes on, gets past him. Incidentally, we might say that he is happily married and a proud father of two children.

FRED W. SCHMIDT, "Smit," Mechanical Engineering, Brooklyn Technical High School; A.S.M.E.

"Smit" has a dream that some day he is going to journey around the world. We can readily understand this when we find that Richard H. Davis is his favorite author. It is a pleasant dream and we hope "Smit" is successful enough in his chosen field to enable him to realize this desire.

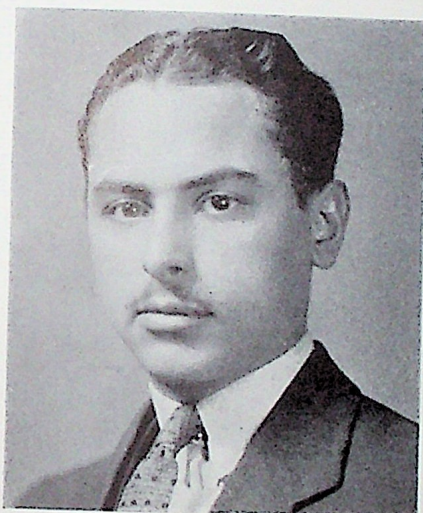
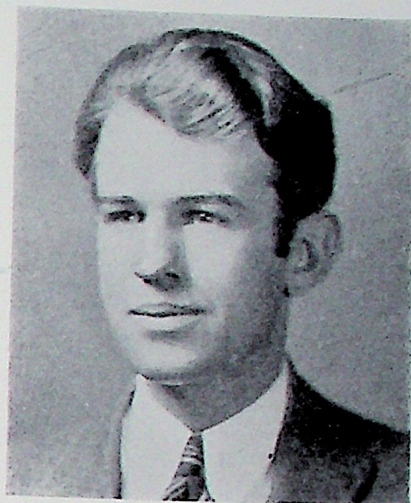


FRANK J. SCHNETTLER, "Inch," Chemical Engineering, Central High School; Newman Club.

And here we present a man more familiarly known to his friends as "Inch"—the mighty atom of the Chemical Section. His hobbies are hunting and shooting, not only afield but also in school, hunting for knowledge and shooting for the best grades. "Inch" and his ever-present smile is a feature of the class.

WILLIAM F. SCHUYLER, "Bill," Civil Engineering, Neptune High School; A.S. C.E.

Bill's another member of our married set. Certainly has an inspiration, if any one has. A good student, Bill has had plenty of experience in the engineering field, and recently was elected Secretary to his firm. Being married, Bill's extra-curricula activities are confined to formal dances, but that can easily be understood.



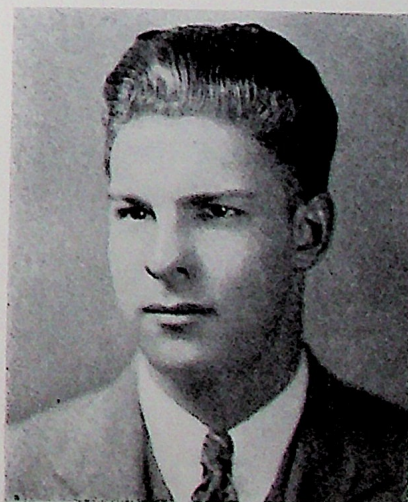
HARLEY BERNARD SEIFF, "Harry," Chemical Engineering, Boys' High School; Class Vice-pres. '32, '33.

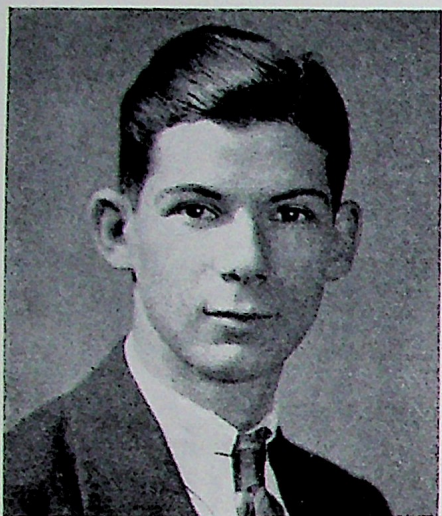
This dark-visaged, handsome, bemoustached gentleman is our ace woman snarer. Not only does he try to encharm our modern damsels, but he is also wooing the goddess of wisdom, Minerva.

In an exclusive interview he said, "The gods are all right for the Greeks, but give me something tangible."

DEAN B. SEIFRIED, "Farmer," Electrical Engineering, Tech, Congers High School; A.I.E.E., Math Club, Basketball '33, '34.

"Farmer" enjoys the customary privilege of such an office by allowing his partner to do the dirty work while he, with a toothpick in his mouth and a pencil on his ear, is off looking for someone who likes hearing why looking after chickens is becoming the national pastime in rural America. The only things he does not understand is Calculus and Reynold's jokes.



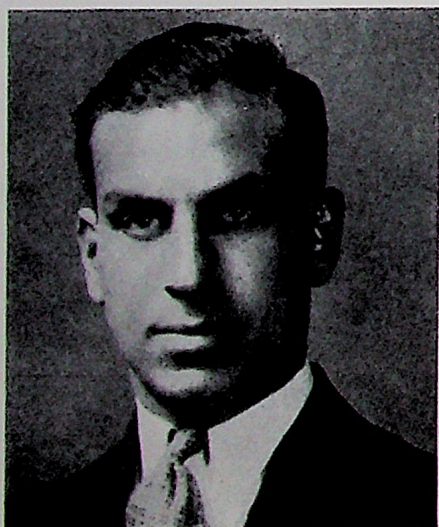


FREDERICK SHAPIRO, "Fritz," AMS, Civil Engineering, Tech, Brooklyn Technical High School; Class Vice-pres. '32, '33, '34. Basketball, Baseball '32, '33. Tech. Cable Editor '34. A.S.C.E., Pi Sigma, Math Society '32.

Freddy is still trying to figure out why he was awarded a scholarship when he entered Cooper Union. We're not surprised at anything done by a fellow whose favorite song is "Oh, How I Hate to Get Up in the Morning," who is nuts about football and can't play it because he is underweight, and who prefers chocolate soda to any other drink.

SAM SHOOR, "Sure," Mechanical Engineering, Tech, New Utrecht High School; Class Pres. '34, Basketball '31-'33, A.S.M.E., Math Club, Student Council.

A regular fellow and a fit man to be president of the class—that's what the Juniors thought of Sam. He is a typical Cooperite, persevering, patient, and ambitious. Quiet as a rule, but very successful in making himself heard when he has something worthwhile to say. Sam is preparing himself for bigger and better things.

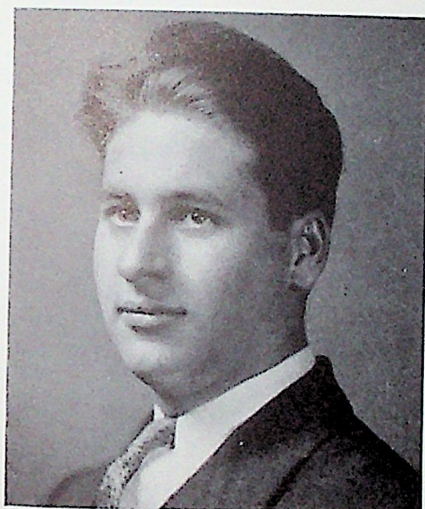
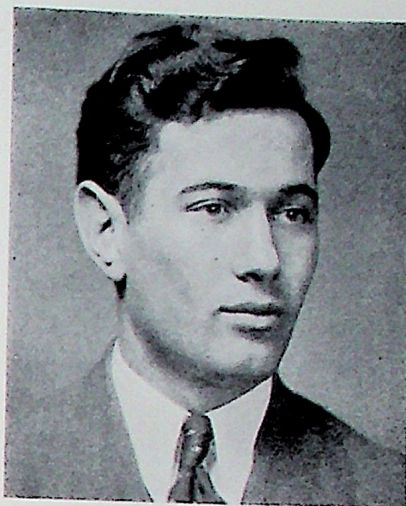


ADOLPH ALFRED SILBERMAN, "Al," Chemical Engineering, Boys High School.

The consistently fine work of "Al" has earned a place for him in the annals of our class. His unselfish, untiring interest in class activities are also worthy of note. Always willing to give a helping hand, "Al" is well liked by his fellow classmates.

MORRIS SLAMOVITZ, "Effie," Electrical Engineering, Tech, Passaic High School; A.I.E.E., Math Club, Basketball '31, '32.

Morris came to Cooper as a "budding" engineer and the poor fellow has not "flowered" yet. He is honest and fearless, and a hard worker. Good-natured and willing to help, he is very popular among his classmates.

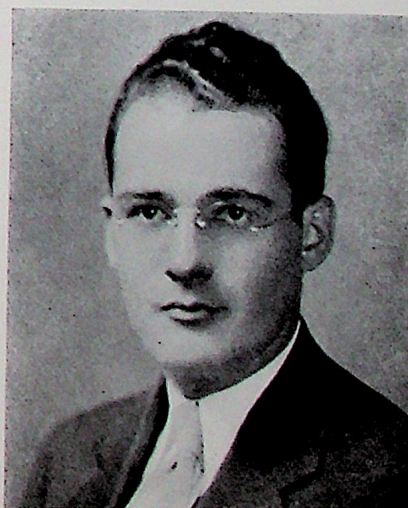


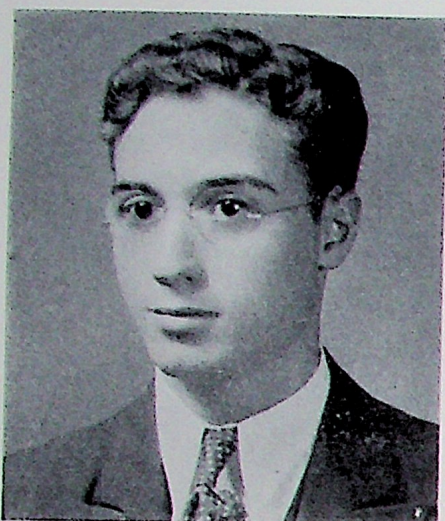
JOSEPH SLOBODOW, "Joe," Civil Engineering, Tech, Eastern District High School; A.S.C.E.; Math Club.

Happy-go-lucky Joe spreads his cheerfulness to his classmates, who often wish that the instructors could be affected in the same way. Joe's favorite hobby is hiking, and he has spent many a day in the arms of Mother Nature instead of holding his nose to the grindstone.

EDWIN V. SMITH, "Smitty," Electrical Engineering, Townsend Harris Hall High School.

A tall, well built, Irish looking chap with a ruddy complexion and engaging personality describes Smitty. While literature and the drama are his preferences, this does not mean he is not technically inclined. Smitty has an ambition to be an X-Ray Physicist, which explains why Physics is his favorite course of study at Cooper. We all hope that he realizes his ambition.



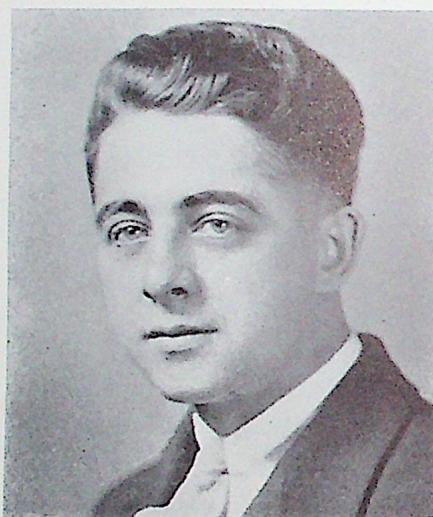


JOHN S. SOTTOSANTI, Civil Engineering, Tech, Greenwich High School; A.S.C.E., Math Club.

Ambitious is hardly the word to describe John. He travels daily to dear old Cooper from his hometown way up in the wilds of Greenwich, Connecticut, and despite this handicap has managed to win a scholarship. John will probably become a surveyor, and if he does, he will be a good one.

ARTHUR SPIEGELMAN, "Speedy," Chemical Engineering, Mamaroneck High School; Class Treas. '30, '31, Basketball '30, '31.

"Speedy" is the class cut-up in the Chem Section. Always on the lookout for new ideas and jokes, he listens with an eager ear to all the radio comics. Upon graduation he hopes to aid the world by assuming a position as one of the great industrialists.

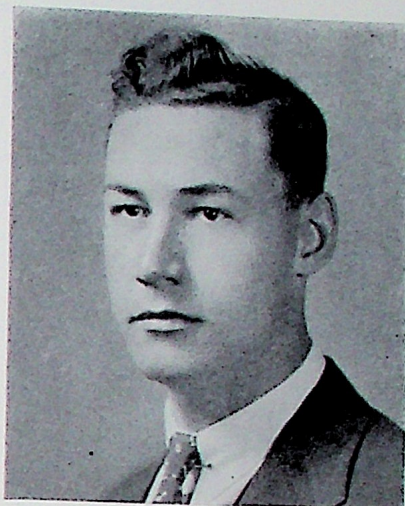


FREDERIK STEPHENSEN "Steve," Mechanical Engineering, Northport High School; A.S.M.E.

It is predicted that when Steve graduates all his abilities will be recognized. He will be employed as a capable young engineer and be married. It is a big order but Steve deserves the best there is. We look to him to carry the traditions of Cooper as the best of the alumnae do.

EDWIN J. STOKIEN, "Stoke," Chemical Engineering, Jamaica High School; Class Sec. '32, A.I.Ch.E.

The pace setter in scholastic endeavor since our first year, "Stoke" has set a high standard for his classmates to follow. His interest in chemistry is equalled only by his interest in football in spite of the fact that he is studying chemical engineering. He hopes to become an actuary.

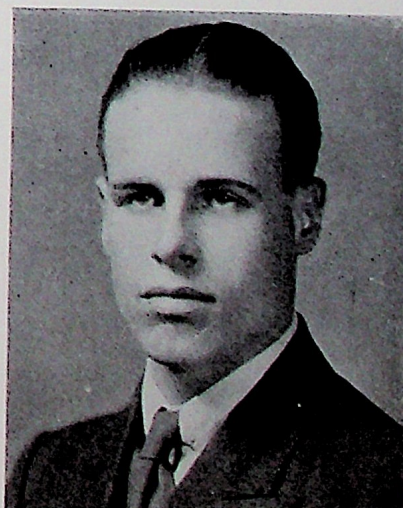


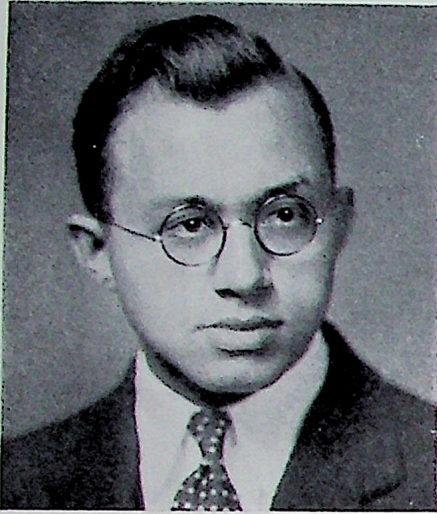
ARTHUR STOLLE, "Dud," $\Phi\Sigma\Omega$, Civil Engineering, White Plains High School; A.S.C.E., C.U.A.A.

Dud lives in White Plains, and is one of our most ardent commuters. Not having much time to spare between trains is perhaps the reason he has become the only fellow in the class who does all his drawing in the time allowed. This efficient chap is one of our best liked C.E. Juniors and without doubt will be a success in the Engineering world.

HERMAN W. STRAUB, "Gob," Electrical Engineering, Hackensack High School.

Boats! Boats! and then some more boats. This just about describes Herman's hobbies and his future ambitions. Living in North Hackensack, N. J. by the Hackensack River he has plenty of opportunity (when school is over) to indulge in his propensities. As a member of that vast organization, The Bell System, Herman is probably dreaming of amassing a fortune and purchasing a yacht and weighing anchor for parts unknown.



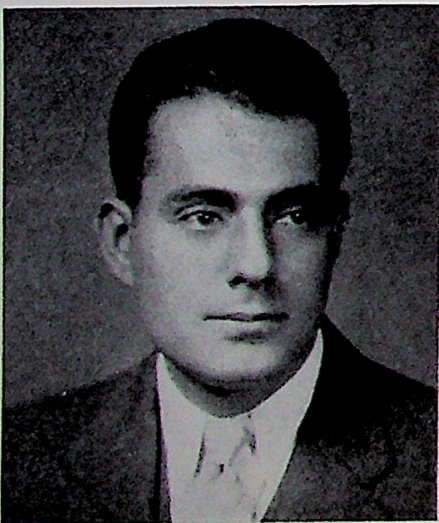


EMILE TARNOWSKY, "Emile," Civil Engineering, Saunders Technical High School.

Emile is one of those students about whom no one knows anything. Living in Yonkers might account for this, though, because he always disappears immediately after class to catch the proverbial train. An excellent student, Emile should make his mark in the Engineering World.

FRANK A. TRACEY, "Trace," $\Phi\Sigma\Omega$, Civil Engineering, St. Peters Preparatory High School; A.S.C.E., Ex-Business Mgr. of Cable '34, C.U.A.A.

Trace is one of our many family men. On the slightest provocation, Frank will regale his listeners with the past antics of his pride and joy, Jimmy, and his wife's achievements. Trace is already an experienced engineer and has dreams of designing another George Washington bridge. Frank's host of friends wish him luck in his great ambition.



PASQUALE H. VISCO, "Pat." Electrical Engineering.

A city-bred lad with agricultural ideas; a man who thinks with his own head and works out his own problems his own way. Combine this with a huge physique, a pair of smiling eyes, a chock of jet black hair, add a dash of good humor and congeniality, a hearty laugh, a spirit of real friendship and you have a picture of Pat.

JOHN D. WEDERMAN, "Johnny,"
Civil Engineering, Central High School.

Meet another of our numerous Benedicts. John likes swimming. His hobby is collecting. He did not specify just what he collects so you can make your guess. John hails from Scranton, Pa. and has ambitions to travel to those distant and unheard of places in the far corners of the globe. Possessed of a sense of humor, he is of an affable nature and should get along in this world.

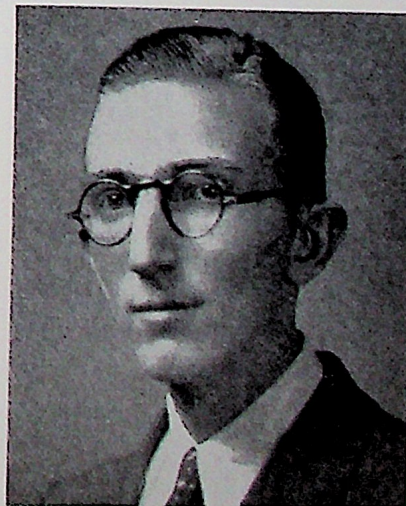


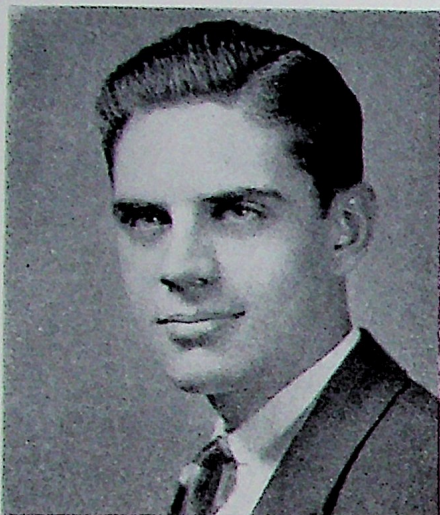
WILLIAM WEINTRAUB, "Bill,"
Chemical Engineering, Boys' High School;
Class Sec. '32, '33.

The energy and industry that "Bill" Weintraub exhibits in connection with his studies has always been admired by his fellow students. His earnestness in applying himself to his set tasks have always produced their reward at the end of the college year, when the results of the year's work are published.

ROBERT W. WEYAND, "Bob," Chem-
ical Engineering, Tech, Brooklyn Tech-
nical High School; A.I.Ch.E., Math Club.
Tech Circulation Mgr. of Cable '34,
Pioneer '31, '32.

Bob is one of the most well-liked and respected men in the class—liked for his cheerfulness and good-nature, and respected for his intelligence, honesty, and courage. While others barely find time to study, Bob not only has won scholarships, but has also assumed the responsibilities of extra-curricular activities.



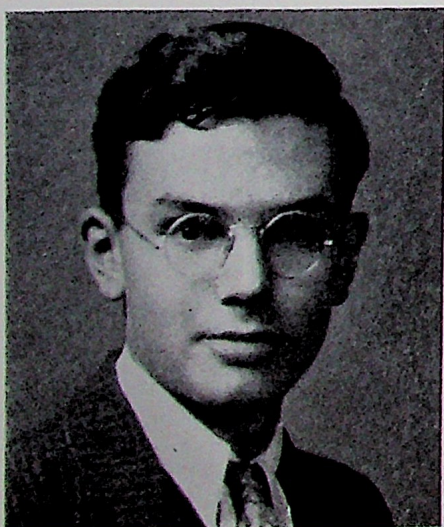


DONALD WILCOX, "Moe." Electrical Engineering, Commerce High School; Class Treas. '30, Entertainment Com. '33, Circulation Mgr. of Cable '34.

A man of parts and spare parts. Presenting the ideal combination-super-high pressure salesman and organizer supreme. This ardent discipline of good humor may be tracked through Cooper's Halls by the wake of odoriferousness created in what he affectionately terms his pipe. His hobbies are dancing, the Lombardo Orchestra and applesauce, swimming and mandolin playing.

MICHAEL WOLIN, "Mike," Civil Engineering, Jamaica Evening High School; C.U.A.A.

Mike works for the Board of Water Supply and plays on their basketball team. Sports are his favorite hobby and one can always find him at C.U. gym twice a week. Quiet and unassuming, Mike is inclined to be methodical but we always find him near the top of the class when the marks are posted.



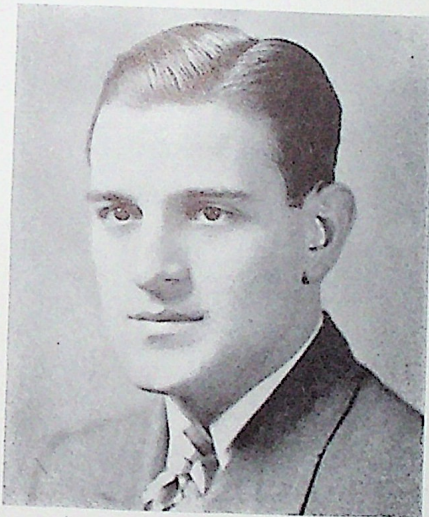
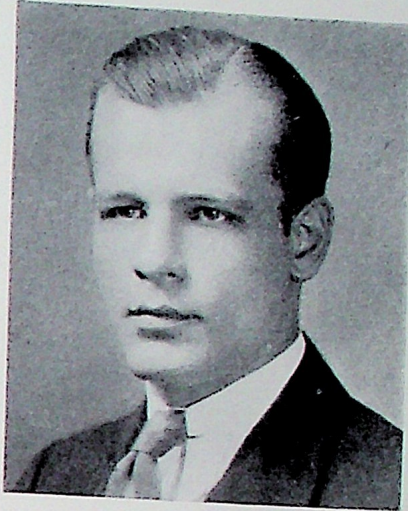
ALLEN ZAHN, "Zahn," Tech, Chemical Engineering, South Side High School.

Modest and quiet, Allen is generally overlooked, but nevertheless, he is more than the fixtures of the class. We can not forget the time that he came in an hour late for his quantitative analysis examination and succeeded in getting the only 100%. His best and most preferred hobby is doing nothing.

SCHOOL OF ARCHITECTURE

FRED J. ABT, "Fritz," Architecture, Bushwick Evening Technical School; Section Pres. '34, Honorable Mention '33.

Fritz, possessing such qualities as initiative, self-confidence and ability, promises to reap a golden harvest. He indulges in ice skating for his recreation and here as in drawing can produce some fancy figures. It is his desire, as well as ours, that he will have a pleasant and happy journey through life.

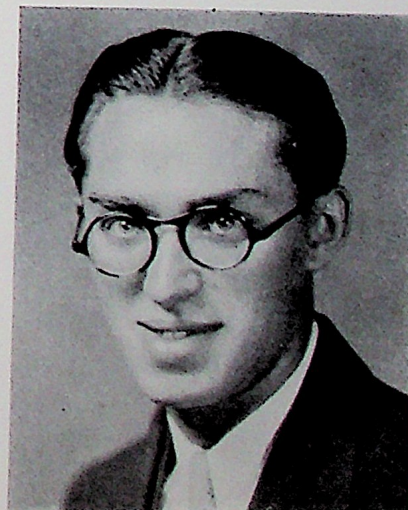


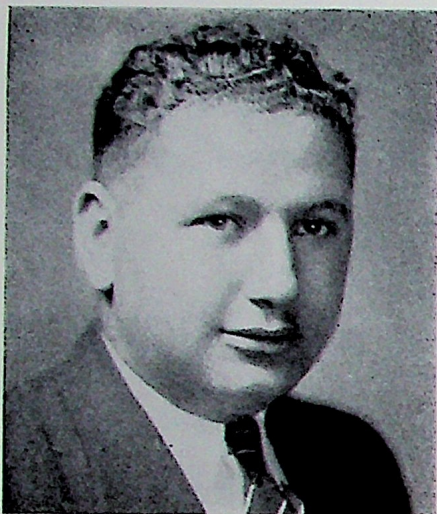
ALFRED ANASTASIA, "Al," ΩΔΦ, Architecture, Manual Training High School; Class Pres. '31, Track, Basketball, Baseball, Capt. and Mgr. Football.

Al is our handsome and debonair football captain and manager, who proves that a versatile repertoire of gridiron tricks can be very useful in everyday life. He says "Be a good pun'er; always evade questions when asked; never interfere with the pleasures of others. Don't kick to the boss; and above all be careful to whom you make your passes.

AL APATOV, "Apples," Architecture, New Lots Evening High School.

"Apples" is the Vitamin "A" in his classroom. The motivating force that sets the pace for the rest of the class. Difficulties disappear and obstacles vanish when he appears on the scene. Lots of plans for the future, but who the future is we don't know—he hasn't met her as yet.



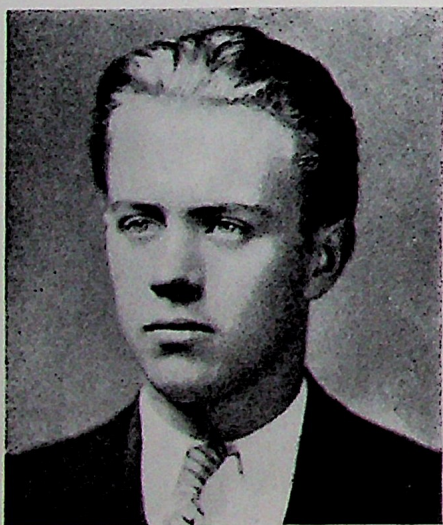
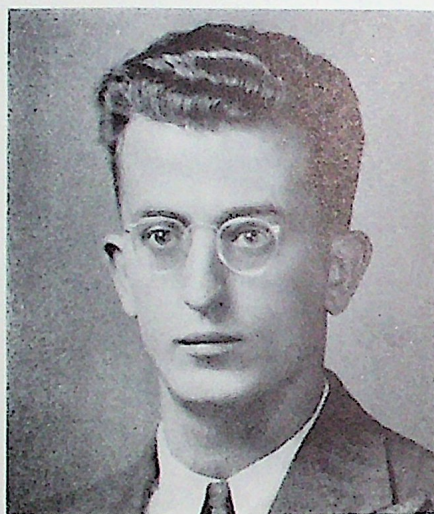


BENJAMIN ASNIN, "Ben," Architecture, Boys' High School; Section Pres. '34.

Ben has the air of a fellow with a fixed purpose in mind. He is a hard worker, capable of leadership, and accepts responsibility willingly. Believes that repairing broken objects is a good exercise for the mind. His is a keen delight in striving towards perfection.

JOE BERTUCCI, "Joe," Architecture, Vocational High School; Soph Hop Com. '33; Section Treas. '34.

Joe is the boy who has a ready answer for every remark. He always has a bunch of good stories and some queer experiences to tell in connection with his hobby of pipe collecting. Joe has been rated the best collector of dues and subscriptions in the class and that's the reason he carries a knife.

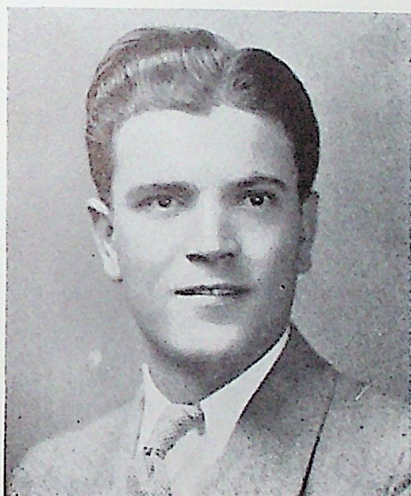


FREDERICK T. BOCK, "Fritz," Architecture; Section Vice-pres. '33, Section Treas. '34.

Fritz has the distinction of being the youngest fellow in his class and if he keeps up his good work will have many more laurels to boast about. His is a thrifty nature and he has adopted a hobby for collecting money, which, should it develop into a habit will find him successfully retired someday, or in jail, whence he will be able to devote his time to his song of "Thanks."

NATHAN N. BRODY, "Steve," Architecture, East Side Evening High School; Class Secretary '33.

"Steve," is a lover at heart of all that is beautiful including Architecture. He is attacking his work here at Cooper with such precision and accuracy that should carry him to nothing short of success. We are inclined to feel that he is strong willed and soft hearted which should make him many friends among the fairer sex.



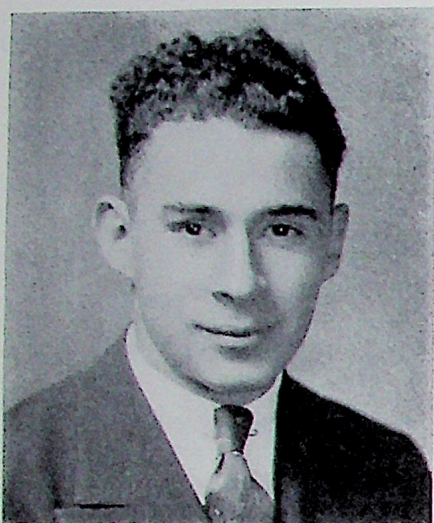
ETTORE CAFARELLI, "Ed," Architecture, White Plains High School; Dance Com. '33, '34.

Ed has high ideas and so he is going West. His ambition is to become a second John D. Rockefeller. Oh, Ed! Is that oil? He has that angelic disposition of tolerance and patience. We are glad to count him as our friend and wish him luck and happiness.

PETER CERRACHIO, "Pete," Architecture, William L. Dickinson High School.

Pete is a fellow who goes about his work in a quiet way and gets it done. Anyone with such a school reputation cannot struggle with worldly competition without recognition; such recognition being both in terms of honor and financial remuneration. He hopes to settle down some day and enjoy life. Well, Pete, best wishes for a happy future.



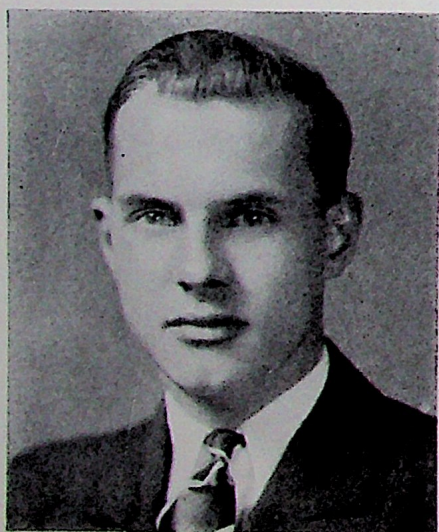
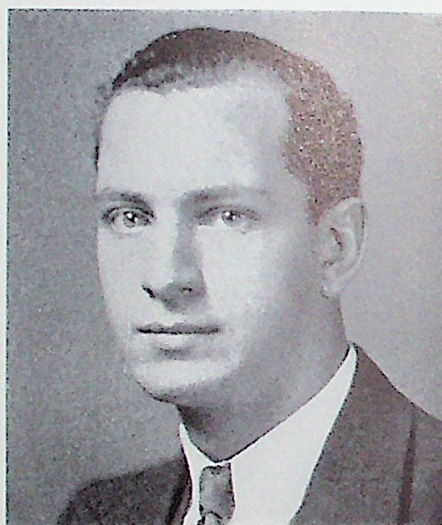


DAVID A. COHEN, "Dave," Architecture, Stuyvesant High School; Dance Com. '34.

Dave, sympathizes with the fellow who has not established communication with the soil by the loving and magnetic touch of his soles to it. "The walker holds the closest relation to nature" says Dave. You will enjoy his easy manner and interesting ideas. A tireless worker, aims straight and should hit his mark.

JULIUS P. COHEN, "Jules," Architecture, Stuyvesant High School; Section Pres. '34, Junior Prom Com. '34.

Jules is a great fellow. We wish there were more like him. A real optimist, always ready to listen to suggestions and ideas. He is going to capitalize some day and we hope he won't forget us. Our guess is that there is a lady in Jule's life: or is that just dandruff on his shoulder?

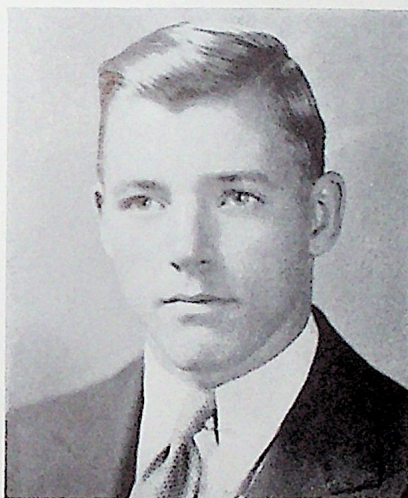


FRANK J. DARWAS, "Frankie," Architecture, James Monroe High School.

Frankie is a real plugger, attends to his work first and relaxes when he has time by playing ball. To the instructors he is a question mark on two legs and they feel as we do that with such keen interest and desire to perfect his knowledge of Architecture he will one day result in mastering this subject and thus enter upon a happy and successful career.

ALBERT DRANTCH, "Al," Architecture, Murray Hill High School.

Al is a fine fellow, good humored and likeable. Enjoys a good joke and is always ready to deliver one in return. Al aspires to making other people happy, and believes that he can materially accomplish this in the design of a modern home that would be within the reach of every family. We agree with him and may he succeed.



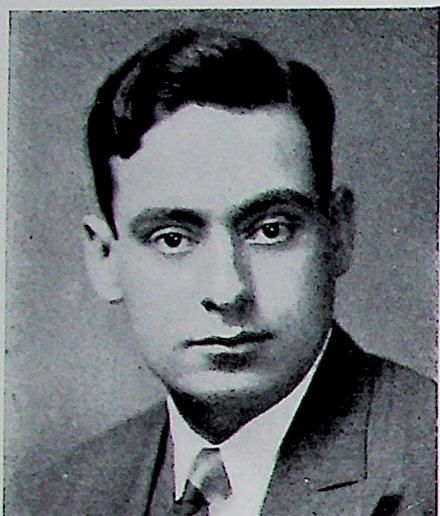
GEORGE W. FREEMAN, Jr., "Bing," Architecture, East Side High School, Newark, N. J.; Treas. '32, Dance Com. '33, Junior Prom Com. '34, Swimming Team.

Bing has that collegiate air which makes him liked by all the girls. Wears golf stockings, knickers, and plays a saxophone. The fellows esteem his friendship and he works hard to prove worthy of the trust placed in him. He is firm and decisive and capable of success in any task he undertakes.

WILLIAM GOODMAN, "Bill," Architecture, Murray Hill High School.

Bill doesn't take life very seriously and this probably accounts for his jovial spirit and disposition. And with his line, why shouldn't he take up fish breeding as a hobby? But he doesn't stop here, for as a wrestler he is also considered a good thrower. Well, we all like Bill and believe he is headed for bigger things, at least we hope so, because it sure would make a whale of a story.



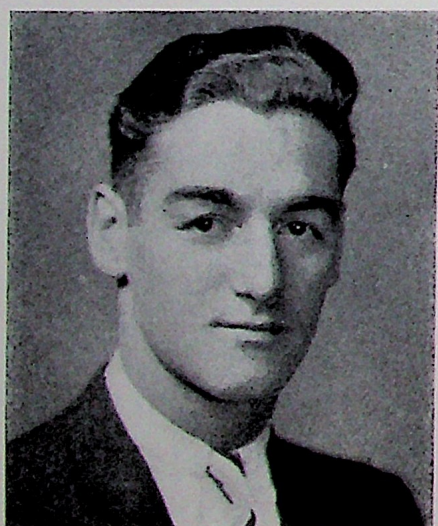
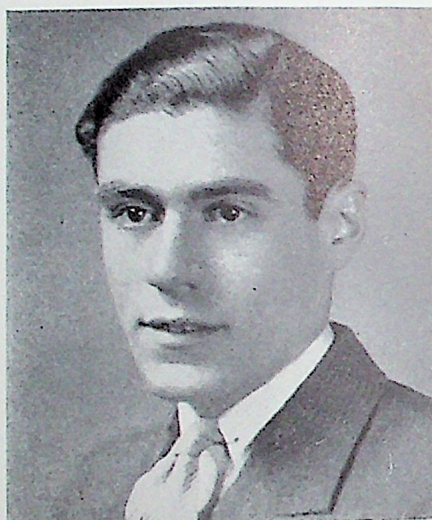


FRANK GORDON, "Frank," Architecture, Morris High School.

Frank, whose hopes and ambitions hinge upon the constructive work to be accomplished in the coming years, is steadily climbing the ladder to victory. Calm, cool, collected and complacid, you can always depend upon him to render an unbiased opinion. His simplicity and kindness have made for him many friends among the students.

HAROLD P. HESSELSON, "Harold," Architecture, Haaren High School; Class Sec. '34, Junior Prom Com. '34.

Harold while being ambitious and studious and seriously preparing for a successful future in the Architectural field, possesses a sense of humour that makes him likeable. Culturally, Harold prefers music and art, but says "Beer must go with the music and the art must be a brunette and have money."

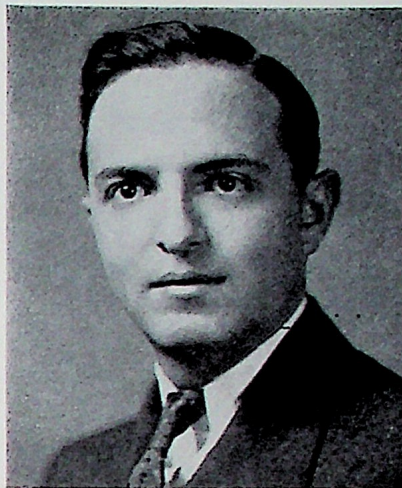


FRANCIS A. JAHRLING, "Rabbit," Architecture, Jamaica High School.

You can take our word for it that Rabbit is an appropriate name for this human dynamo, who employs all the speed of his namesake in turning out work. With his natural love for drawing, together with his understanding of the necessities of life, he is well prepared to storm the heights of success. May he succeed.

IRVING LACKS, "Irv," Architecture, Boys' High School; Class Sec. '33, '34.

Irv, contrary to his name plate has as much talent as the next fellow and in some phases a heap more. Always in good humor; evidently he has reached a state of perpetual happiness. A square shooter—how could he be otherwise; why even his facial expressions denote what he is thinking, and at times, boy, is his face red!



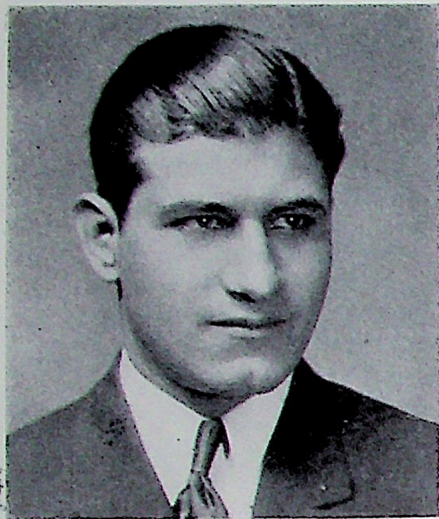
L. ALBERT LEE, "Al," Architecture, Annapolis High School, Maryland, Columbia University; Arch. Editor '34 Cable, First Mention '33, C.U.A.A.

This handsome, debonair chap with the southern accent, hails from the mint julep country and yearns to return thar and settle down as a landed estate holder. Al is noted for two things, the Wana-maker Cable Ad; and his famous mystery lighter (Ed. Note—"Mystery" is right). Seriously though, Al is a demon "go-getter" and never quits till the job is finished or they run out of beer.

HYMAN LEIBOWITZ, "Hy," Architecture, Eastern District Evening High School.

Hy is the quiet, unassuming fellow whose diligence and patience make him the envy of every student in this class. The perfect specimen smokes "Old Golds," drinks Chase and Sanborne, uses Palmolive, Listerine and Kremel, and is headed for Barbasol when he becomes of age. All in all he has a lot of scents.



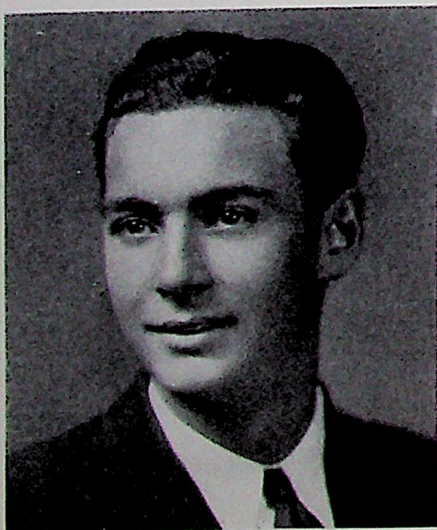


FRANCIS L. LERARIO, "Frank," Architecture, Bryant High School.

Frank's eyes were opened on his first blind date and since then he has been working with diligence and perseverance akin to love. His happy and congenial disposition is a revelation of his true character. Frank is well liked and should establish himself successfully in the work he has undertaken.

HERMAN B. LEVITZ, "Herb," ΔΣΚ, Architecture, Brooklyn Technical High School; Section Treas. '33, Soph Hop Com. '33, Junior Prom Com. '34, Arch. Circ. Mgr. '34 Cable.

"Herb" is a go-getter of the first order as many of his classmates will tell you. He takes part in many school activities and is well known throughout the Architectural School. Being a gentleman, he prefers blue-eyed blondes but is frequently seen in the company of red-heads and brunettes.

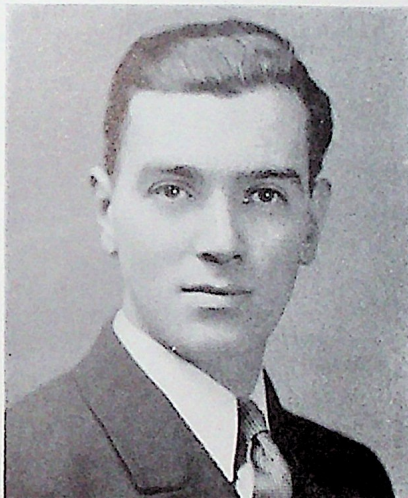


MICHAEL A. LISINICCIA, "Mickey," Architecture, Stuyvesant High School; Class Vice-pres. '33, '34, Dance Com. '33, '34.

Mickey, whose indomitable spirit and rugged individualism have gained for him the confidence of the entire class and thus left him open to shoulder many responsibilities, will long be remembered by his many friends and classmates who have been recipients of his kind and helpful services. Scholastically he rates high. We wish him every success he so justly deserves.

OTTO MARKARD, "Otto," Architecture.

Otto, with the twinkle in his eye, and a merry ha! ha! is warmly received into the hearts of his fellow-men. His attractive disposition makes him vulnerable and some day he will be the answer to some sweet maiden's prayer, to keep the home fires burning. A lucky boy and a happy girl.



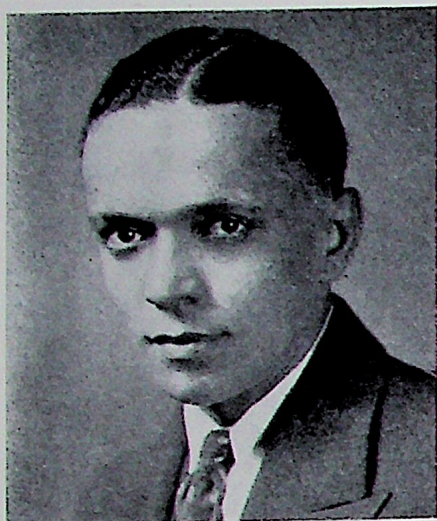
JOHN MCGOWAN, "Mac," Architecture.

Here is one Irishman who is not so green. Analytical and critical; demands being shown before being made; this latter is just to show his imagination. Enjoys the great outdoors and spends hours in the sun, thus enabling the seeds of thought to germinate.

HUGO MONTEFERRANTE, "Monty," Architecture, Theodore Roosevelt High School; Baseball '33, '34.

Here is Monty, who is the exponent of that sterling quality of courage and grit so emblematic of the heroes of sport, starring in baseball. Besides his athletic inclination, he takes great pleasure in his work, loves to sketch; and, in the words of his class buddies, is well on his way to realizing the trials and tribulations of an architect.





LOUIS C. MORARD, "Lou," Architecture, Cooper Junior High School.

Lou is a quiet student and lives moderately. He has no bad habits except that of snoring. Don't ask us how we know because it would be a reflection upon his reputation as a sleeper. From the work he has turned out, we feel he has advanced sufficiently to receive his letters: A.O.N.—Authority on Nightmares.

DANIEL MURRAY, "Dan," Architecture; New Rochelle High School.

Dan knows no fatigue, he is forever with his problem, and with struggling perseverance he succeeds in presenting a neat and effective solution. He cherishes his many friends here at Cooper, and wishes them well. He keeps his mind alive by reading. It is really a pleasure to converse with him.

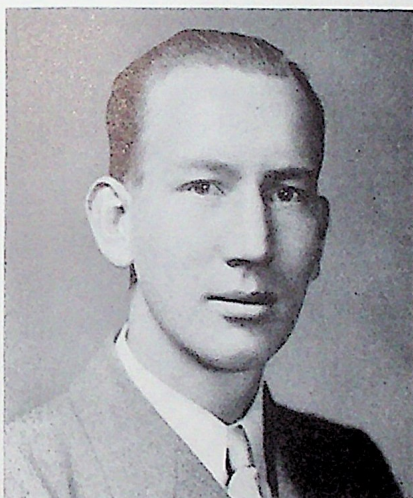
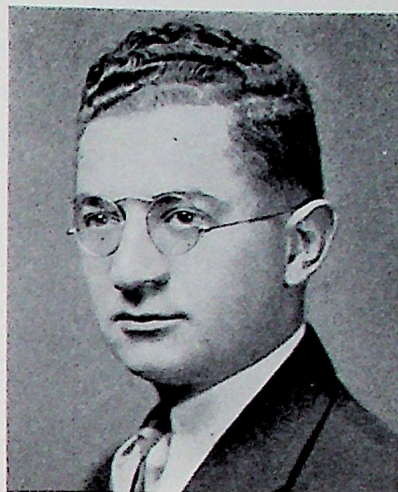


HAROLD M. NACHMANN, "Nackie," Architecture, Creston Junior High School.

This is Nackie, hale, hearty and full of life. His kidding gives many a good laugh to the fellows who appreciate his humor and friendship. He attributes his lovable nature to lots of fresh air, moderate exercise, plain food and regular sleep, along with a disposition to be of service to his fellow men.

SAMUEL MARTIN NOBLE, "Marty," Architecture, De Witt Clinton High School; Chairman Soph Hop '33, Class Pres. '34, Student Council '34, Chairman Entertainment Com. Junior Prom '34.

Marty as we all know, is gifted with that innate power, called leadership. The executive type, fast and snappy, demands action. Earthquakes, auto smashups, floods, fires and bathing beauty contests are just breakfast for him. What a man! A likeable chap and a devil with the women.



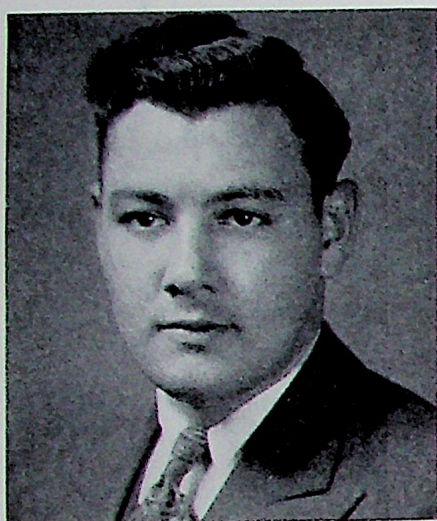
OLAF C. OLSEN, "Ole," Architecture, Curtis High School.

Ole, with his happy personality and well balanced nature makes friends very easily. But he isn't depending upon this to keep him afloat in the sea of life, for he has taken up swimming as a hobby. Nevertheless, he has come far along the march to victory and with his ability is sure to be a credit to his profession.

JOSEPH A. PALMERI, "Joe," Architecture, Passaic High School.

Joe, the artist and dreamer. What vast ideas fill his imagination. Once he casts aside a tendency to emulate Rip Van Winkle and begins to work, you'll agree that his talents are unlimited. His taking ways and artistic interest have made for him many friends who wish him the best of luck.



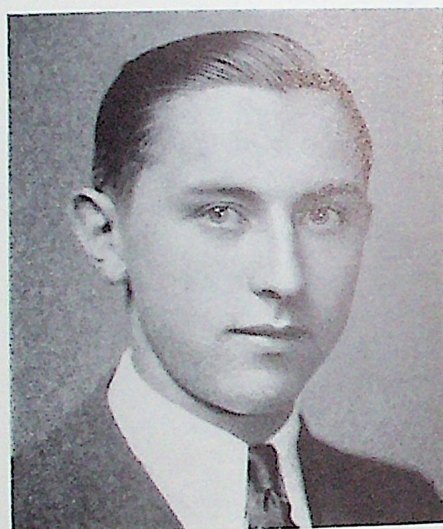


CHARLES V. PERLA, "Charley," Architecture, Wm. L. Dickinson High School; Class Pres. '32, Vice-pres. '33.

Charley has that abundance of life known as pep. He is a good mixer and has gained many friends by his loyalty and sincerity. When it comes to work he is like a steam engine (lots of talk). Goes off on a tangent every now and then but returns in time to answer the roll call.

WILLIAM ROCCA, "Bill," Architecture; Section Treas. '34, Soph Hop Com. '33.

Bill is a strong influence in any argument. Clever, shifty, fast, he drives his punches home. He accepts any task, no matter how arduous. Being a conservative type of fellow he never buys anything that won't last two years, and always wears plain clothes, a distinction that has made him the aim of many a cupid's dart.

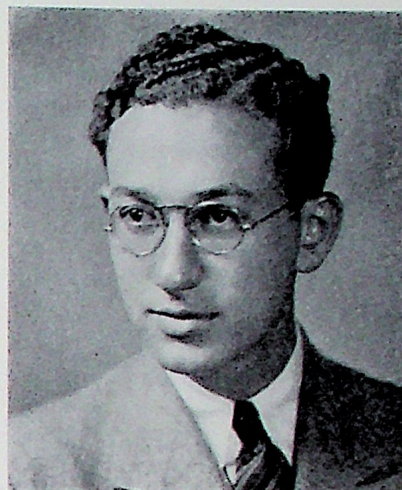


GUSTAVE L. ROMOND, "Gus," Architecture, Linden High School; Honorable Mention '31, '32, '33.

Seriously, Gus is not half as bad as he is pictured. He always manages to get his work out and has accomplished things around school in a friendly manner which has brought him the admiration and respect of all who know him. The world needs men of his kind and he is on the way.

DAVID ROSENTHAL, "Dave," Architecture, Thomas Jefferson High School.

Dave is the adventurous type, always hunting for excitement. Lives in hope and anticipation of some day meeting the Beauty of Nature. He is rational in his habits and does not believe in overworking. His philosophy is, "All work and no play makes Dave a dull boy."

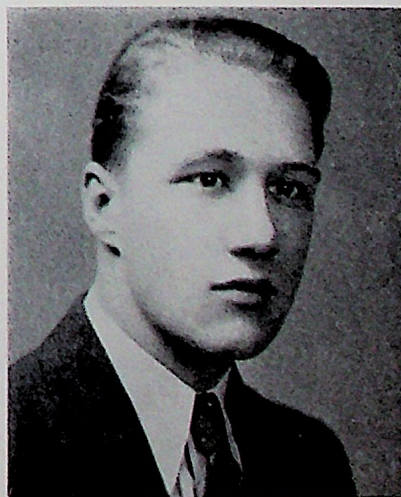


SIMON ROSS, "Sy," Architecture, Hebrew Technical Institute.

"Sy," ever since his cradle days has been nicheing to become an architect. His compositions of frozen music play upon the keys of emotion and are indicative of the extent of his creative powers. He has acquired the habit of work and with such conscientious effort and application, is headed towards success, riches and fame.

NORMAN G. SCHEPPER, "Norm." Architecture, Haaren High School; Honorable Mention '33.

Just to prove that you cannot keep a good man down, we offer you Norm, whose philosophy is, "Failure is not an end, it is an experience to be profited by. The day after a failure is the best day to start again." You see he has fashioned an intellect for thinking and bids fair to garner many laurels.



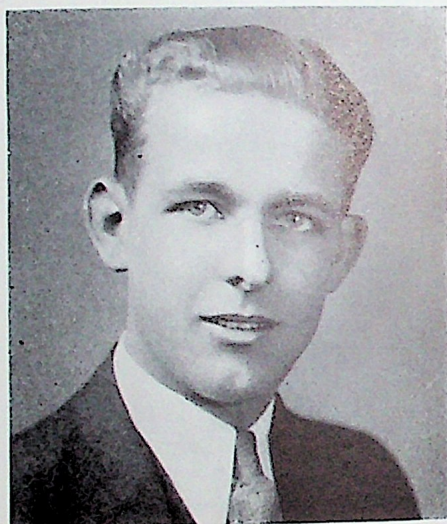


MARIANNO SCHIMMENTI, "Mike," Architecture, Murray Hill Industrial High School; Section Vice-pres. '34.

"Mike," is aiming to make a name for himself in the Architectural world. Well, with his humor, quality of smile and sincerity, along with a definite goal and a clear conception of how it can be gained, he is bound to succeed. We wish him luck.

OTTO SCHMIDT, "Arty," Architecture, Stuyvesant High School; Class Sec. '34, Basketball '32.

This is Arty, the self-styled sheik of C. U., and although a learned student is very adept at dancing and desires his nickname to be "Arty" in honor of the famous dancing master, "Arthur Murray." Always puts his best foot forward first, especially when the girls start chasing him. However mischievous he may be, he still has many good points with which to pierce the realm of success.

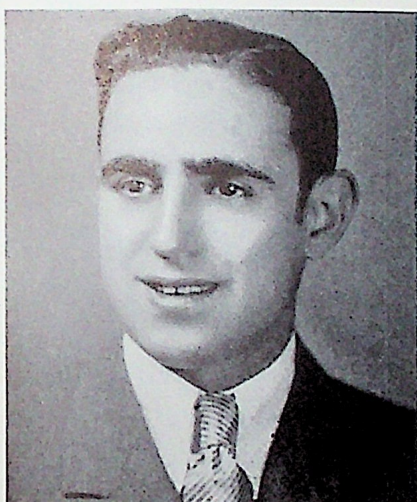


BERNARD R. SMITH, "Smitty," Architecture, Stuyvesant High School; Class Treas. '33.

Smitty sits upon his seat,
And draws the lines in ink.
It sticks upon his finger tips,
But does he use the sink?
His shirt sleeves get all pencilled on,
All worn and very frayed;
His trousers get so very thin
It makes one quite afraid.
We'll bear our sorrows rain or shine
To help in our small way,
Because, dear fellow, he's sure to be
An architect some day.

CHARLES J. STAMM, "Chick," Architecture, Roosevelt High School; Football '32.

Chick has all the enthusiasm of his youth, and believes that the greatest good a man can do is to cultivate himself and develop his power. A dazzling individual on the gridiron. Appreciates and employs the natural beauties of life in his endeavor to succeed in his architectural work.

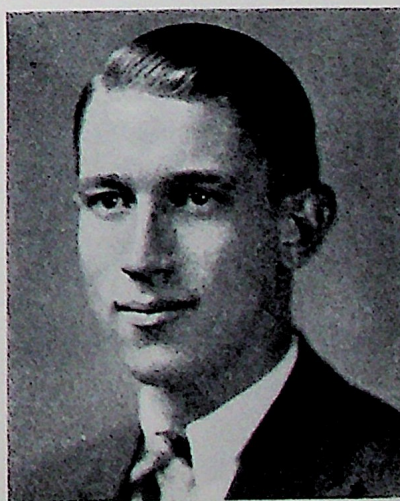


DOMINICK TESORIERO, "Dick," Architecture, Hebrew Technical School.

Dick draws with the greatest ease and when he finishes you discover that he has just been making trees. Clever boy and just because he attends night school it doesn't follow that he's always in the dark; no sir, there's a light in those eyes.

CARL TILBERG, "Carl," Architecture, Hasbrouck Heights High School.

Carl is a liberal in thought, respects other people's opinions and is resolute in his determination to become an Architect. Takes a lively interest in all sports pertaining to the outdoors. Enjoys music and dancing. He will always be remembered for his honesty and sincerity.



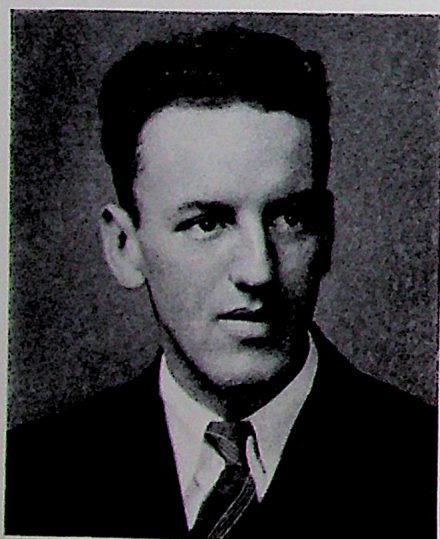
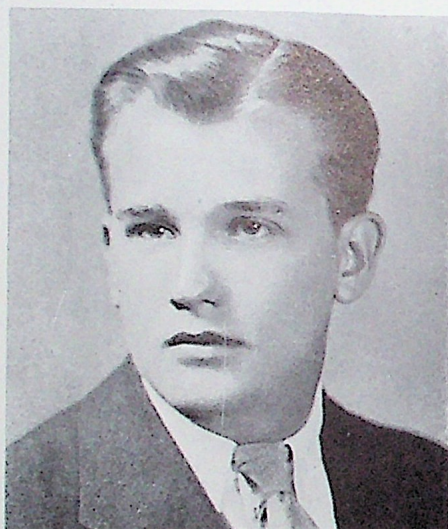


C. CARMER WARD, "Charlie." Architecture, Plainfield High School; Class Vice-pres. '33. Class Treas. '34.

Charlie as he is known by his many friends has all the attributes of a gentleman and a scholar. Modest in opinions of self and generous in appraisal of others. As our capable and efficient treasurer he has performed well—that he will equally succeed in his profession is our unanimous prediction.

GEORGE C. WEINPEL, "Judge," ΔΣΚ. Architecture, Passaic High School; Football '32, '33.

Judge comes from Passaic, New Jersey, and while diligently absorbing the atmosphere here at Cooper, still finds time to sit on the bench during football games. He has a suppressed desire to become an Architectural Engineer and it is just beginning to show itself above the beams and girders which dominate his mind.



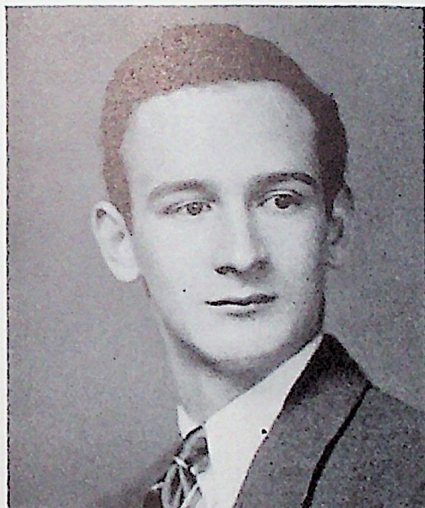
HAROLD WETER, "Hal," Architecture, Jamaica High School; Soph Hop Com. '33, Honorable Mention '32.

They call the place Hal comes from Ozone Park. To most of us it is just a lot of air. Anyway, Hal is a serious-minded chap who usually has something to say when he speaks. Upon completion of his first year's work he was awarded honors by the judges on the Architectural Committee. We quote him — "success doesn't come to anyone, you have to go after it," so watch him travel.

SCHOOL OF ART

ANGELO DE BENEDETTO, "Nitch." ΥΔΘ, Pictorial Design, Central High School; Class Pres. '32, '34, Basketball '31, Football '33, Track '34, C.U.A.A. '33-'34, Student Council '33-'34, First Prize F.H.D. '32-'33, Annual Com. '33. N.A.S.S.C., Senior Hop Com. '34.

"Nitch" is a quiet and determined Art student who has the athletic qualities of an All-American halfback. His record speaks for itself. His presence is one of the bright spots of Cooper Union. He is one student that will be remembered for a long time.

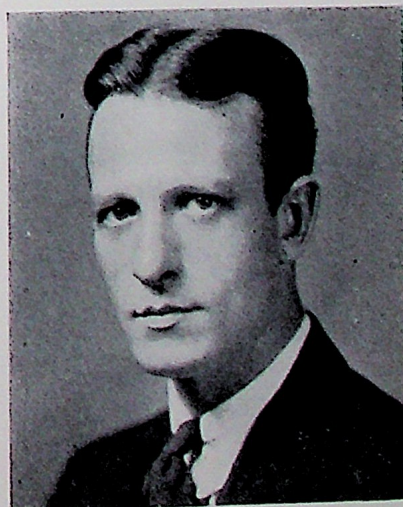


ARTHUR J. GARRATTI, "Red," Free Hand Drawing, De Witt Clinton High School.

Here is a picture of "Red"—a quiet fellow, with an amiable disposition, who admires pretty girls—and draws them too. It may be truly said that he has two sights, one to see beauty, the other to record it; his hobby being photography. "Red" has good tastes, a good sense of values, and a heap of common sense which is reflected in his commendable art work.

PETER J. McQUADE, "Mac," Sculpture, Graduate F. H. D. '27; Night Art Editor Pioneer '32, Publicity Chairman Annual '33, '34, Gold C '33, Pres. Sculpture '32, '33, '34, Associate Editor and Publicity Mgr. Cable '34, G. S. Council '34 President Night Art Council '34.

Hail to our most popular and most likeable "Mac." A natural leader with helpful and unselfish qualities, who practices the principles he advocates.



equal proportions, one fourth of the time is saved. The leather tanned by this process, it is claimed, is more flexible and smoother than that tanned by bark, while the strength of the raw hide is retained in a greater degree.

Peter Cooper's Locomotive.

Those acquainted with the character and reputation of Mr. Cooper will be interested in the following letter written by him to Mr. Brown, the author of *The History of the First Locomotive in America*. The letter was written to explain the cause which led the writer to deviate from the path of his legitimate business to become a builder of locomotives. Our cuts, for which we are indebted to the *Railroad Gazette* of this city, represent the locomotive below referred to:

"New York, May 18, 1860.

"MY DEAR SIR: In reply to your kind favor of the 10th inst., I write to say that I am not sure that I have a drawing or sketch of the little locomotive placed by me on the Baltimore and Ohio Railroad in the summer of 1829, so like best of my recollection.

"The engine was a very small and insignificant affair. It was made at the time when I had become the owner of all the land now belonging to the Canton Company, the value of which, I believe, depended almost entirely upon the success of the Baltimore and Ohio Railroad.

"At that time an opinion had become prevalent that the road was ruined for steam locomotives, by reason of the short curves found necessary to get around the various points of rocks found in their course. Under these discouraging circumstances many of the principal stockholders were about abandoning the work, and were only prevented from forfeiting their stock by my persuading them that a locomotive could be so made as to pass successfully around the short curves then found in the road, which only extended thirteen miles, to Elliott's Mills.

"When I had completed the engine, I invited the directors to witness an experiment. Some thirty-six persons entered one of the passenger cars, and four rode on the locomotive, which carried its own fuel and water; and made the first passage, of thirteen miles, over an average ascending grade of eighteen feet to the mile, in one hour and twelve minutes. We made the return trip in fifty-seven minutes.

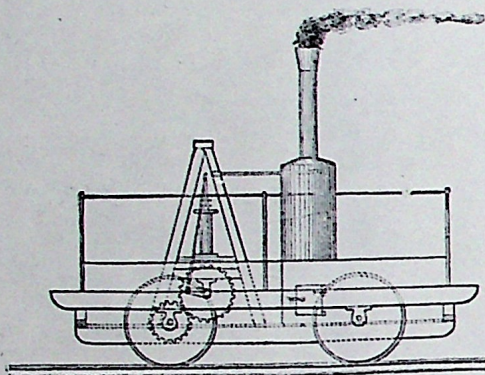
"I regret my inability to make such a sketch of the engine as I would be willing to send you at this moment, without further time to do so.

"Yours, with great respect,

"PETER COOPER."

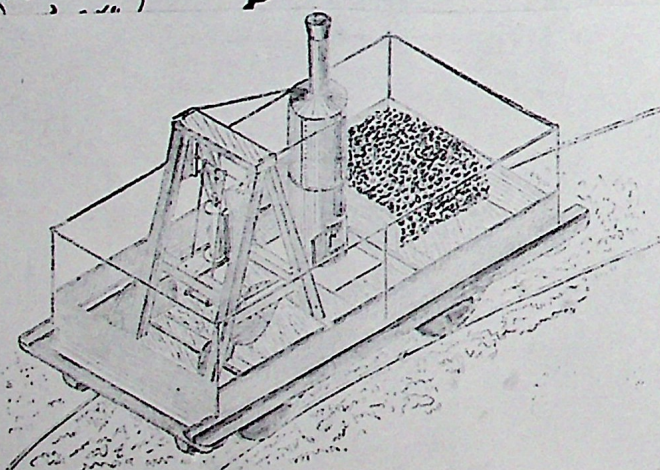
The boiler of Mr. Cooper's engine was not as large as the kitchen boiler attached to many a range in modern mansions; it was of about the same diameter, but not more than half as high. It stood upright in

the car, and was filled above the furnace, which occupied the lower section, with vertical tubes. The cylinder was but three and a half inches in diameter, and speed was gotten up by gearing. No natural draught could have been sufficient to keep up steam in so small a boiler; and Mr. Cooper used, therefore, a blowing apparatus, driven by a drum attached to one of the car-wheels, over which passed a cord that in its turn worked a pulley on the shaft of the blower. Among the first buildings erected at Mount Clare was a large car house, in which railroad tracks were laid at right angles with the road-track, communicating with the latter by a turn-table, a filipian affair indeed



compared with the revolving platforms, its successors, now in use.

In this carshop Mr. Cooper had his engine, and here steam was first raised. With his own hands he opened the throttle, admitted the steam into the cylinder, and saw it rank-substitute operate successfully



First Locomotive Built in America.

with a clacking noise, while the machine moved slowly forward with some of the bystanders, who had stepped upon it. And this was the first locomotive for railroad purposes ever built in America; and this was the first transportation of persons by steam that had ever taken place on this side of the Atlantic on an American-built locomotive.

Mr. Cooper's success was such as to induce him to try a trip to Elliott's Mills, on which occasion an

open car, the first used upon the road, having been attached to the engine, and filled with the directors and some friends, the first journey by steam in America on an American locomotive was commenced. The trip was most interesting. The curves were passed without difficulty, at a speed of fifteen miles an hour, and the grades were ascended with comparative ease. The day was fine, the company in the highest spirits, and some excited gentlemen of the party pulled out memorandum books, and, when at the highest speed, which was eighteen miles an hour, wrote their names and some connected sentences, to prove that even at that great velocity it was possible to do so. The return-trip from the Mills, a distance of thirteen miles, was made in fifty-seven minutes. This was in the summer of 1830, but the triumph of this Tom Thumb engine was not altogether without a drawback. The great stage proprietors of the day were Stockton and Stockey and on that occasion a gallant gray, of great beauty and power, was driven by them from town, attached to another car on the second track—for the company had begun by making two tracks to the Mills—and met the engine at the Relay House on its way back. From this point it was determined to have a race home; and, the start being even, away went horse and engine, the snort of the one and the puff of the other keeping time and time.

At first the gray had the best of it, for his steam would be applied to the greatest advantage, on the instant, while the engine had to wait until the rotation of the wheels set the blower to work. The horse was perhaps a quarter of a mile ahead, when the safety-valve of the engine lifted, and the thin blue vapor issuing from it showed an excess of steam. The blower whistled, the steam blew off in vapory clouds, the pace

increased, the passenger, shouting, the engine gained on the horse, soon it lapped—the silk was applied—the race was neck and neck, nose and nose—then the engine passed the horse, and a great hurrah hailed the victory. But it was not repeated, for just at this time, when the gray master was about giving up, the band which drove the pulley which moved the blower slipped from the drum, the safety-valve ceased to scream, and the engine, for want of breath, began to wheeze and pant. In vain Mr. Cooper, who was his own engineer and fireman, hunched his hands in attempting to replace the band upon the wheel; in vain he tried to urge the fire with light wood. The horse gained on the machine and passed it, and although the band was presently replaced, and steam again did its best, the horse was too far ahead to be overtaken, and came in the winner of the race. But the real victory was with Mr. Cooper, notwithstanding. He had held fast to the faith that was in him, and had demonstrated its truth beyond peradventure. All honor to his name!

THE twenty-four letters of the alphabet may be transposed 630,148,401,733,239,430,000,000 times.

THE GREAT HALL

The Great Hall of Cooper Union has been the scene of many stirring speeches and has had many distinguished visitors. Here a practically unknown Abraham Lincoln, on February 27, 1860, gave a speech on Emancipation which brought him national reknown.

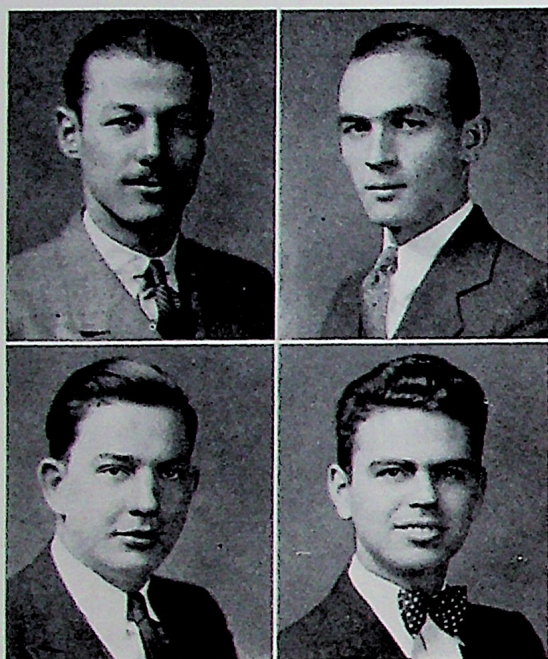
William Cullen Bryant, Edward Everett, Henry Ward Beecher, Wendell Phillips and almost every great personage of the age devoted time to speaking at Cooper Union. Since Cooper's time, every President to Woodrow Wilson, spoke in the Great Hall.

The advanced viewpoint of the Trustees of Cooper Union is shown in their early use of the hall for free public lectures. Less than three years after the Union was opened, they sponsored lectures on Social and Political Science which continued for many years.

The Great Hall, seating 2500 people, is extremely quiet and immune from outside disturbance. Its acoustics are perfect. In all its arrangements, the Hall is planned for the complete comfort of audience and speaker.

Classes of 1936

GENERAL SCIENCE



President—Leo Eichenbaum
Vice-president—Max Yessowitz
Secretary—Leslie W. Bollman
Treasurer—George Kligfield

The history of our class from the time of its entry to the halls of Cooper Union in 1931 to the present year, records the efforts of a group of ambitious young men who gain pleasure not only from the study of engineering but also from acquaintanceship with fellow classmates.

Looking back, our first year in Cooper Union was one of inactivity since it always is the lot of the poor Freshman to look up to his older and supposedly wiser school mates, whose initiative and accomplishments have already been established, and follow in their footsteps. Due to the shyness which is inherent in every newcomer, the members of the class, which consisted of three sections, were late in getting

acquainted with each other. As a result no concerted class action or event occurred that year. But as all first year men usually do, we supported every activity within our ability.

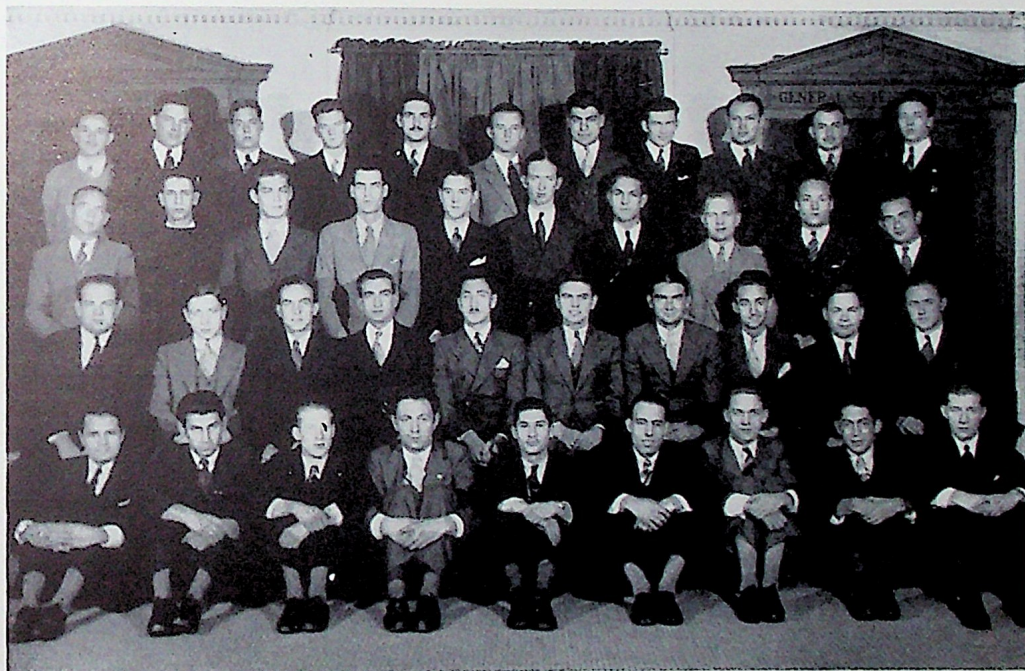
The most momentous news of that year was that of the innovation of the new six-year course which began when we entered our Sophomore year. Our class thus became the last graduating class of the five-year General Science Course.

At the inception of our Sophomore year we discovered that transfers to the new six-year course and mishaps in the examinations had somewhat depleted the membership of the class. As the class was more compact, the members became more friendly with each other than theretofore; so much so that the following spring a class boat excursion on the colorful Hudson had the unqualified support of every member of the class. It successfully served the social purpose for which it was planned.

The third and present year finds the class further reduced in membership, but then we feel the barriers between the sections of the class entirely removed. We are one harmonious unit and think of each other as classmates instead of just section members.

The most important event characterizing this year, exclusive of the great scholastic and material benefits derived from our association with Cooper Union was this blending of the three sections of the class into one unit.

Having fought our way through the rigorous entrance exams, and three years of difficult study we feel that our ability has been proven and greater trust can be placed in us. We feel that we desire to fulfill all that is expected of the General Science Class of 1936 and will endeavor to accomplish much both before and after graduation.



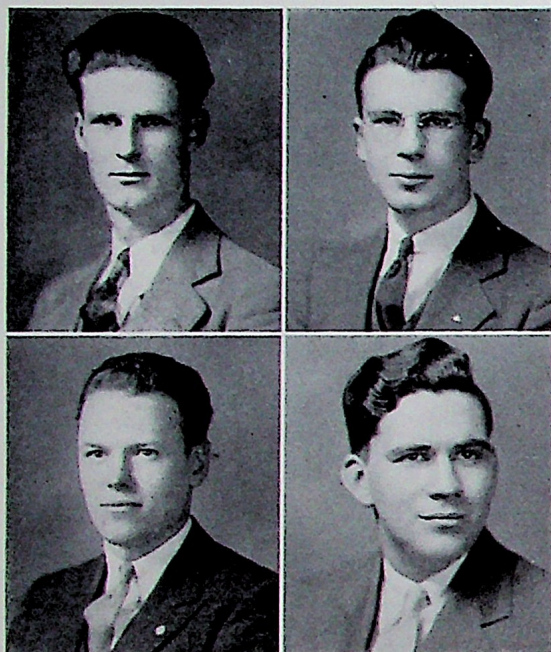
Top Row—W. Lindheimer, L. W. Bollman, L. B. Luchner, J. McNerey, H. Scharf, S. Casperson, H. Cohen, H. A. Riordan, P. Wildman, C. Malter, G. Ackert.

Second Row—L. Hornby, W. Pellegrini, A. Zwecher, J. Westman, J. A. Roberts, L. Passel, C. Vinci, W. Thompson, H. Miller, M. Rivetz.

Third Row—A. Landin, R. Schwartz, M. Yessowitz, A. Herdman, C. Degelman, G. Kligfield, B. Horowitz, S. R. Gangi, M. Fink, L. Coonan.

Bottom Row—G. S. Morano, L. C. Kazazian, J. Sundermeyer, A. Segelman, S. Trocker, P. C. Krueger, E. J. Blass, N. Urick, S. G. Horesta.

ELECTRICAL ENGINEERING



President—James J. Gill
Vice-president—Ray Kilmer
Secretary—David L. Matson
Treasurer—Alfred J. Munn

We, the class of 1936, hold the unique position (if you would call it that) of being the last class in Electrical Engineering of the five year night course.

At the beginning of the course in 1931 there were enrolled about seventy-five students. These students were divided into three sections. Each man was inspired to do (graduate in 1936) or die and it seems that the spirit has endured throughout these years.

Now exams, experiments, etc., have a tendency to wreak havoc which fortunately is unforeseen by the ambitious freshmen and the result is that some students have been left by the wayside so that up to the present time there are forty-five students in this course, which is now

divided into two sections.

To go to school at night as most of the students know—especially those of the night courses—is no small job. Going to work in the day (those fortunates!) and grabbing a bite to eat at night and then rushing to school to be there when the roll is called, and then after school to go home to work and study until the wee small hours of the morning—all this is borne with a grin. Despite the fact that the students have to devote most of their out-of-school hours to home work, etc., sport activities have not been ignored.

In the freshman year of the course, members of the class participated in basketball and track meets. The track team had the distinction of taking third place in the Middle Atlantic Championships in the Night Relay.

In the second year, the class was still represented in the basketball and track teams. This class has the distinction of producing one of the best basketball players Cooper Union has ever had, in the person of George Bojarsky. Bojarsky is unfortunately not with us this year, having turned his footsteps elsewhere. Good luck to you, George!

In this our third year the weight of the work is felt more keenly than it has been in previous years and so the class is not as active in sports as heretofore, although we are represented in football and on a tentative wrestling squad.

In consideration of the fact that the class has such limited time at its disposal, it is commendable that its members have been able to participate in extra-curricular activities, at all, and yet keep a high scholastic record.

The class of 1936 looks back over the events of the past three years with the hope that should the coming years bring them the satisfaction of the past, they can go on, knowing that their struggles have not been in vain. With the thought of the very broadening scope of electrical engineering, the class looks toward an enhanced future for all in their chosen field.

All the members of the class have shown the spirit which is symbolic of The Cooper Union—one of eager desire for the advancement of science.

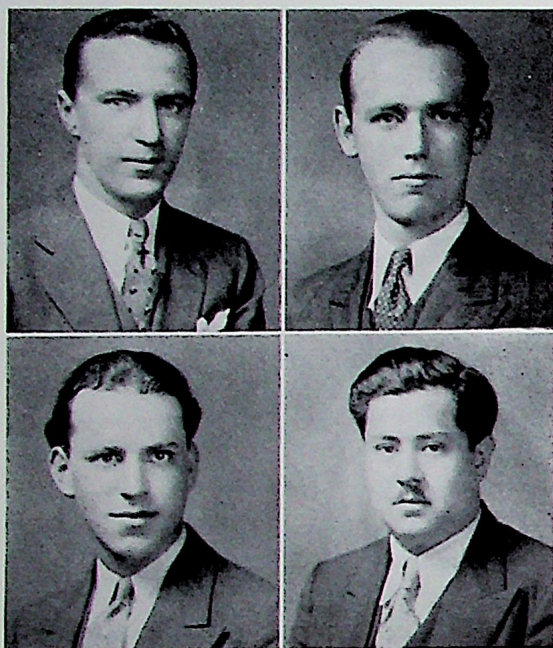


Top Row—W. Zenoni, C. Gorman, M. Kaminsky, E. Oakwood, H. Schafiroff.

Second Row—I. Perlman, I. Orellana, R. Duguid, S. Berg, I. Mager.

Bottom Row—W. Goebeler, D. Matson, R. Kilmer, J. Gill, A. Munn, G. Warren.

CHEMICAL ENGINEERING



President—Frederick Emigholz
Vice-president—John A. Lindner
Secretary—Louis Schramm
Treasurer—Ralph J. Bergman

The Chemical Engineering Class of 1936 is unusual in at least one way. When previous classes reached our stage they were depleted in number considerably. We are holding together quite well. (N.B.—All the members of this class are not in the picture.) We know that the class will not acquire any additional members so our aim is to avoid casualties at the exams.

The Chemical Course, we have been told by other engineers is the "toughest." It is true that the instructors and professors are relentless—problems, lab reports and experiments being scrutinized closely by them. We know, nevertheless that it's for our own good and burn plenty of midnight oil to get by.

There are three classes of students in every college—those who

attend for a degree, those who just attend and those who attend in order to become engineers who know their stuff. To a man we are in the latter class.

Our first class president, Bertil Petersen might be classed with George Washington, in that he is no longer with us. He went to Sweden for a couple of years, but to prove that Cooper men are out of the ordinary, he returned, passed the entrance exams again and entered the new six year course. We conclude there is nothing like Cooper in dear old Sweden.

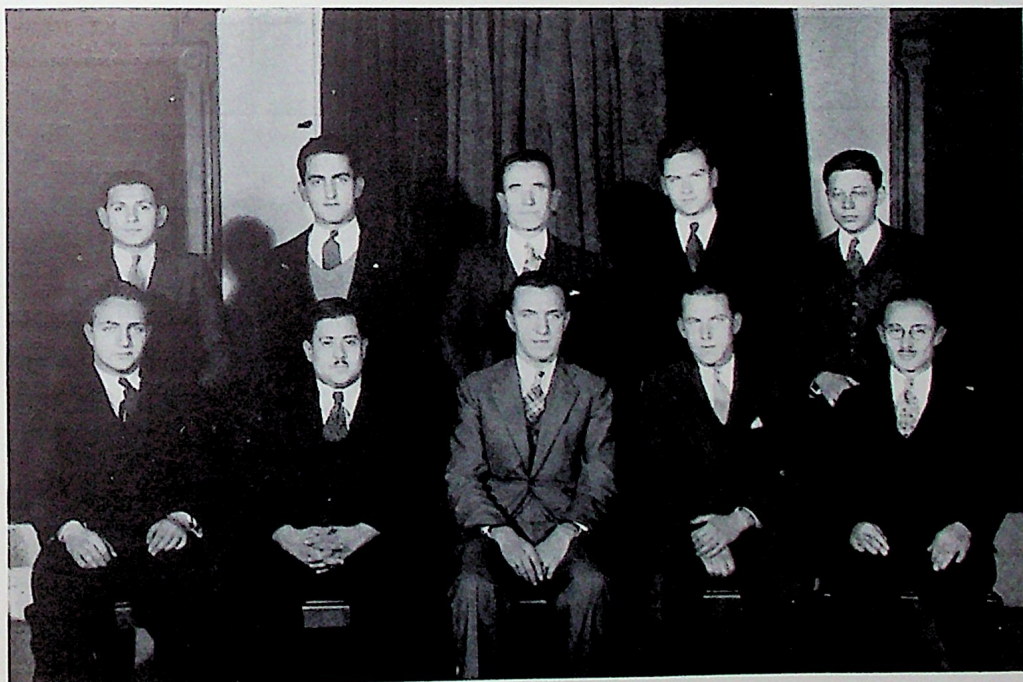
When we became sophomores, the shocks of our Freshman year having subsided, we decided that we would advance into extra-curricular activities along with our schedule of school work. Accordingly, we began to support the dances and find out about fraternities and the traditions of Cooper. John A. Lindner, our Soph President led us then.

In this our third year in Cooper we are stepping out under the able leadership of Fred Emigholz. With Frosh and Soph timidity gone, ability to carry a heavy schedule easily and get into most activities is manifested. As a body we like to attend our own class affairs of which there have been two before the

half of this school year passed. The class is enthusiastically looking forward to its big year, the Junior year in 1935 when it expects to surpass previous classes in traditional Junior activities, such as the Junior Prom and The Cable. While the Chemical Engineering class always has a fewer number of students than the other engineering courses, our class hopes to be a leader in future activities as it has been in the past. More affairs are looked forward to, especially the reunions after graduation.

We feel that the information and knowledge found in our text books and gained from our lectures is very important towards our future, but that in itself is not sufficient. The academic work must be rounded out by extra-curricular activities if our education is to be truly complete.

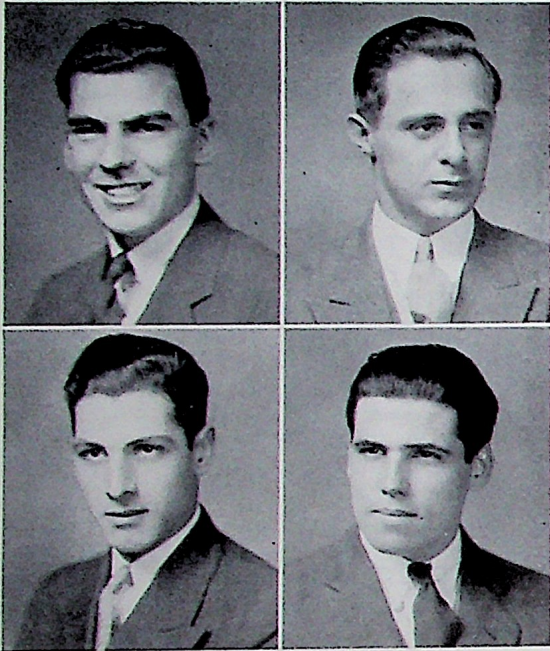
One can readily see from this summary that we are essentially Chemical Engineers and not writers, nevertheless, we will continue to record the history of our class as it is made.



Top Row—N. Wald, S. Boross, J. Hill, G. Benda, D. Aronson.

Bottom Row—M. Hunger, R. Bergman, F. Emigholz, L. Schramm, M. Cooper.

ARCHITECTURE



President—Frank H. Neidig
Vice-pres.—Jack H. Tebbutt
Secretary—Frank R. Lo Bue
Treas.—Joseph F. McDonough

On looking back over the past year's work, the thing that stands out most vividly is the high spirit and morale that has been maintained.

Hard work bred of the desire and the driving force of the goal ahead of us brought the sophomore class through a difficult year with flying colors and a zestful appetite for the coming junior year.

This sophomore year has not been entirely without social interest, though the students time is limited he still manages to participate in the various functions that go to make up the extra curricular work.

A class organization was formed in the first semester to represent the students in all scholastic activities.

Throughout the year meetings were held monthly. This brought the students together in an informal manner which led to many constructive ideas, that have been most beneficial to the class as a unit. Contacts and friendships were made in this manner to outlast all semesters and strenuous years which a student puts in a drive towards his goal.

Support and backing with a genuine enthusiasm was given by the class to such worth-while causes as The Cable and the Cooper Union Athletic Association.

Members of the class were represented in the Architectural Fraternity of which we all are proud.

The sport activities were not neglected. Football received a large turnout as most of the class liked something with a kick in it. Baseball was not to be denied as the first signs of spring approached.

Those not participating in sports were able to vent their excess energy serving on committees, collecting funds, and many other ways.

The year brought something to the students which was greatly appreciated and taken advantage of by practically every student who had the time.

This was the arrangement whereby students were permitted the use of the Christodora Gym, and will be noted by many students as one of the most fortunate occurrences of the scholastic year. The swimming pool was a feature of the gym that earned many praises by everyone who reveled in this sport.

The highlight of our own social activities was climaxed by a brilliant dance held at the Park Central Hotel. This annual sophomore hop is anticipated and shared by every student in good standing with his best girl.

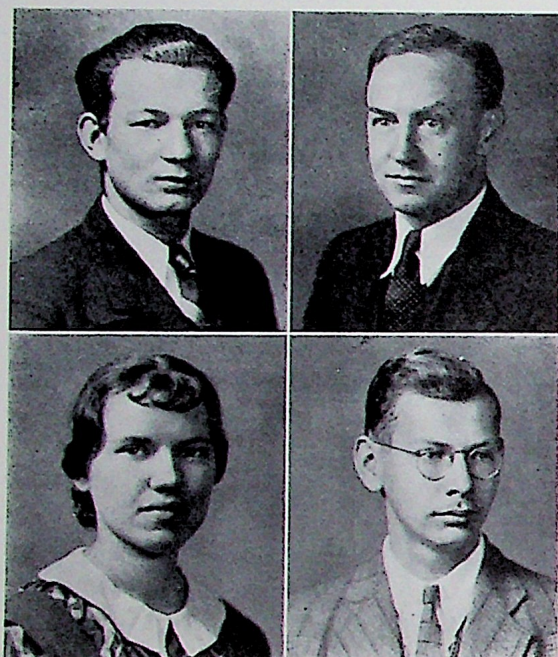
In passing over the years' work one cannot help but feel a pang of regret at losing the valuable and sympathetic help and advice of one who has become endeared to the hearts of the entire student body. A man to whom a fellow can turn in a time of stress and be sure to come away a little more hopeful and better in spirit and mind for the contact. Edward A. Miller leaves us this year but as the years go by the memory of a kindly, wise teacher, will always be with us.

In passing a brief word of thanks is hereby tendered to the instructors who in their capacity of teachers have become more than mere teachers, for they helped us as friends and counsellors.



Top Row—L. Cantor, A. Yacomelli, M. J. Charlestown, J. Pellegrinelli, J. McDonough, A. Otranto, S. Friedman, A. Silleg, A. Rathofer, C. Beyns, J. Kerner, J. Oliveri.
 Second Row—P. T. Wiiri, S. Auerbach, H. Scherker, A. Coruzzi, E. Isaacs, J. Farley, S. Tissenbaum, R. Koch, E. Wildermuth, S. Goldman, N. Apostolou, E. Hanpashian.
 Third Row—E. Stevens, T. Koterwas, S. Gulko, F. Lo Bue, F. H. Neidig, J. Tebbutt, S. Huberman, E. Brady, J. Zinner, L. Merletto.
 Bottom Row—I. Hoffzimer, D. Friedman, J. Kaprowsky, M. Stein, E. Irwin, O. Halse, G. Ingram.

FREE HAND DRAWING AND MODELING



President—David Rosen
Vice-president—Robert J. Kamel
Secretary—Anna Conzani
Treasurer—Atkos Suto

The second year in the Drawing and Modeling Department is made up of students desiring to study pictorial design, advertising design, and fashion illustration. Their schedule last year was somewhat similar to the present first year work, except that they worked five nights a week, with no modeling and with just one evening a week to draw from the human figure. After passing the first year work, the students were separated into four groups and admitted to the drawing and painting classes under four advanced drawing and painting instructors, to remain in these painting classes for the remainder of their work in the school. As the first year was an introduction to instruction, the second, third, and fourth years are an introduction to learning.

Advertising design and fashion illustration are by-products of pictorial design, and all students in the second year are considered pictorial design students, studying the drawing and painting of the human figure three evenings a week and design one evening. Here again no one school of thought in painting is striven for. In so far as is possible, the student is permitted to choose the instructor with whom he wants to associate himself for three years. If this choice cannot be made, the student's record is carefully gone over and he is placed with the instructor with whom it is deemed he will work most satisfactorily.

Again recalling the very limited time that a student has to spend in the Night Art School, the chief objective of the drawing and painting classes, and the composition classes, is to teach the student how to learn more about his subjects. In the third and fourth years, certain specific techniques incidental to specific types of design are actually taught.

Owing to the discontinuance of plaster cast drawing, the advanced life classes are this year very crowded, which makes it difficult to teach on the one hand, and difficult to learn on the other. However, new life classes on the sixth floor have been opened to the Night Art School students, so that it is easier to carry on at one time a great deal more work than was possible in the congested conditions that existed heretofore on the first floor.

Design in its truest sense—that of spatial organization—has been brought into the student's curriculum this year. Though it is truly a beginner's subject, it is given to all students in the Drawing and Modelling Department at one time or another, so that they will not leave school without having had some of it. This type of design does not necessarily mean making pictures involving the human figure, but is the study in the organization of space, enabling the students to find out what the behavior of a line, or a form, or a color does to a given space. It is a valuable background for nearly any type of graphic or plastic expression.

The term spatial organization is less specific than "page lay-out," a term denoting more or less the same thing and used by many in the study of advertising design. It applies to sculptors for lettering, bas-reliefs and obviously for other situations, where a sculptor is confronted with the embellishment of a flat or a shallow surface. It also concerns the sculptor in the use of free standing sculpture where he has to consider the pattern of a piece in relation to a definite setting. It bears an obvious relationship to the make-up of any picture, or to the arrangement of a room. It is a fundamental study.

Students passing the second year continue for the following two years with the same drawing and painting instructor. They drop the course in spatial organization, and continue to study composition or technical problems directly related to a specific application of their design work in fashion illustration, advertising design, or picture making.



Top Row—W. Schwartzkopf, S. Weber, J. Wright, M. Bauer, D. Rosen, D. Laiken, M. Cooper, Z. Bourdon.
Second Row—N. Tempel, A. Valdes, W. Verman, W. Schneeberg, G. Cuomo, A. Brill, A. Suto, H. Bombard, F. Boruch.
Bottom Row—M. Block, N. Manfredi, A. Conzani, M. Golden, M. Perlman, M. Markowitz, H. Pisark, M. De Lorenzo.

Peter Cooper, Epic Adventurer

HE SAVED THE B. AND O.
ONLY AS ONE INCIDENT IN HIS LIFE

by
LYNN R. MEEKINS

IN early life, when I was first married, I found it necessary to "rack the cradle" while my wife prepared our frugal meals. This was not always convenient, in my busy life, and I conceived the idea of making a cradle that would be made to rock by a mechanism I did so, and enlarging upon my first idea, I arranged the mechanism for keeping on the flow, and playing a music box for the amusement of the baby. This cradle was bought of me afterward by a delighted peddler, who gave me his whole stock in trade for the exchange and the privilege of selling the patent in the State of Connecticut.

This was an incident that Peter Cooper

deducted in telling in the reminiscences dictated by him in his later years, now in the Peabody Library. No other story of his long and crowded life better illustrates many of the characteristics of one of the most remarkable of America's early millionaires. He had a genius for invention in small as well as large matters; his mind was persistently awake and active and he was always keen to turn opportunity into profit.

TO MOST PERSONS Peter Cooper is a benign countenance framed in unusual whiskers, but he played a substantial part in the nineteenth century and his work lived after him. His connection with the early days of the Baltimore and Ohio railroad, for which he built the Tom Thumb engine, first American-built locomotive to go into service, is a railroad classic that is familiar, and only a little of Mr. Cooper's account of it need be repeated. He found the principal stockholders discouraged.

I told them if they would hold on a little while I would put a small locomotive on the road which I thought would demonstrate the practicability of using steam engines on the road, even with all the short turns in it. I got up a small engine for that purpose and put it on the road. My confidence saved this road from bankruptcy.

BALTIMORE will always be interested in Peter Cooper because one of the most productive periods of his life was passed here, a time in which he contributed important labor and inventions to American transportation and industry. From time to time there is reference to Cooper's work and there is mention of it, usually fragmentary and inadequate, in the local records. In these reminiscences we have the story in his own words.

Peter Cooper was born in New York February 12, 1791. His Baltimore work was in the

second phase of his career, according to his own quiet comparison. Looking back I can see that my career has been divided into three eras. During the first thirty years I was engaged in getting a start in life; during the second, thirty years I was occupied in getting means for carrying out the modest plan which I had long formed for the benefit of my fellow men, and during the last thirty years I have devoted myself to the execution of these plans.

WITH PRACTICALLY no school education Peter Cooper traveled the hard road for many years. One of his biographers points out that in those days it was no disgrace to an American to go into one business after another, seeking the one that would be most profitable and agreeable. Thus Peter Cooper worked successively as a hatter, a coach builder, a machinist, a machine maker, a grocer, an iron worker and a glue manufacturer, "achieving success in every occupation, but abandoning each for something more promising and learning in each something which promoted his success in the next." In a comparatively idle moment of his boyhood he invented a pounding machine to help his mother in the weekly washing.

He was a real boy. He bore scars of youthful escapades. He fell from a homestead; he tumbled from a high tree where he was picking cherries; he sought the nest of a hanging bird and found that it was a booby's nest; he was nearly drowned three times. He tried the ventures of the times, including the investment of his entire youthful capital of \$10 in lottery tickets in which he had every penny.

At 17 he was a coach builder's apprentice at board and \$15 a year, and he saved money. Later he made more money with a shearing machine and did well with other efforts, and then at the age of 33 the real foundation of his wealth was laid when he became a glue maker in New York. With capital to invest he got into the iron business. In 1830 he was engaged in the manufacture of charcoal iron in Baltimore, and he came near losing his life. At this time everything was prospering. His building of machines and his grocery business had paid well. "I supported at this time my aged parents, two maiden sisters and paid for the medical education of a brother," he said. His story of his experience in Baltimore relates:

In 1838 I purchased 3,000 acres of land within the city limits of Baltimore for \$100,000. On a part of that property I erected iron works which I afterward sold to Mr. Abbott, of Baltimore. I was drawn into the speculation in Baltimore by two men who represented that they had large means and we brought together

land that took in the whole shore from Yell's Point for three miles. After paying my part of the money I soon found that I had paid all that had been paid and I was even paying the board of the two men. I said to them that they must either pay their part or sell out. They had no money and they sold out to me, one for \$10,000 and the other for a smaller sum. The discouragement and stoppage of progress in improvement in the city of Baltimore that had been occasioned by the state of things in the Baltimore and Ohio Railroad made it difficult to do anything with the property before mentioned but to keep it.

In order to make it pay something toward meeting the cost and taxes I determined to build iron works upon it. I had 400 or 500 tons of iron ore at Lanesboro Point and I determined to use the waste of the property, which was being stolen in every direction, and to turn it into charcoal, and to use it in making charcoal iron. For which purpose I built a rolling mill. In my efforts to make iron I had to commence to burn the wood, into charcoal, and in order to do that I erected large kilns, 25 feet in diameter, 12 feet high, circular in form, hopped around with iron at the top, and were so arranged to make a tidal wave in which to put the wood, with single belts left out in different places in order to smother the fire when the wood was sufficiently burned.

IN THIS PERIOD came other narrow escapes and grave damage to his beautiful wharves.

After having burned the coal in one of these kilns very perfectly, and believing the fire entirely smothered out, we attempted to take the coal out of the kiln, but when we got it about half way out the coal itself took fire and the men, after carrying water sometimes to extinguish it, gave up in despair. I then went myself to the door of the kiln to see if anything could be done, and just as I entered the door the gas itself took fire and enveloped me in a sheet of flame.

I had to run some ten feet to get out, and in doing so my eyebrows and whiskers were burned, and my feet were scorched down to the bone of the feet. How I escaped I know not. I seemed to be literally blown down by the explosion, and I narrowly escaped with my life.

RAKE GOOD FORTUNE attended Mr. Cooper in Baltimore. He thought he was in for a heavy loss, but a boom in prices struck the city and he pulled out with a handsome profit.

With his Baltimore profits and money made elsewhere, Cooper expanded his operations.

During all this time I had continued the manufacture of glue, kieselguhr, oil, powdered chalk, putty, white and also the grinding of white lead, and the putting of buckskins for the manufacture of buckskin leather. A very busy man, indeed, and then he tried bigger things, for his greater operations in Baltimore had increased his experience. He returned to New York and built an iron factory which he turned into a rolling mill for rolling iron and making wire and ran it for some years. He moved to Trenton, N. J., and built a mill and wire factory there. Near Easton, Pa., he built three blast furnaces, the

largest then known; bought the Andover mine and built a blast furnace, formed the Trenton Iron Works, and built other mills, in one of which the first iron beams were rolled. He was planning Cooper Union in New York and wanted it fireproof. He found that the iron beams he sought could not be obtained.

I determined to have them rolled at one of my mills, but found in the end that the necessary experiments and suitable machinery had cost me \$75,000.

But it was a fine case of Cooper luck, for it became a very profitable business. Cooper found that it paid to have details. He attained high rank in the iron industry by his progressive methods and was regarded as one of the leading ironmasters of America. In 1870 the Iron and Steel Institute of Great Britain conferred upon him the Bessemer medal for his services in the development of the American iron trade.

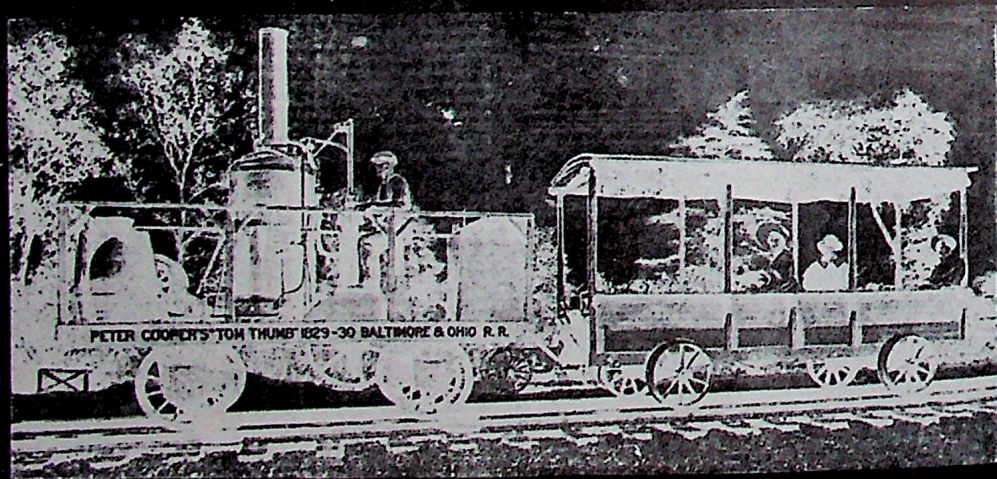
OF EXTRAORDINARY VALUE was Mr. Cooper's support of the first American cable. With Cyrus W. Field and others he carried on the work and early failure only increased his faith and brought him success. He was right in the midst of all his work, for he was the kind of man who faced danger as a part of his life. He tells a thrilling story of the cable days and describes how their great industry was to get people to believe that cable had any had any messages across the cable.

Cooper's imagination and desire to realize ideas and inventions. It would take almost to give a catalogue of them. They included almost everything he was not a man of one idea, but a diligent worker in all sorts of things, and he had the knack of making them pay. All his activities converged to his plan for the third era of his life. He had a purpose in making money, and it was manifested in "The Cooper Union for the Advancement of Science and Art," which became one of the most useful institutions in New York and which is today known around the world. It has done immeasurable good to thousands.

Cooper had much more than a year of school, but he gave his life of about a century and much of his fortune to free education and free speech for others.

NATURALLY COOPER got into politics, but he did not fare so well as in industry. For in the 1876 campaign, as the Greenback Party's nominee for the Presidency, he received only 10,740 votes out of a total of 5,412,433 cast. Yet his interest in politics continued and in 92 he issued a book on the subject.

He died April 4, 1883, and "a mighty multitude passing in procession, looked upon the beloved face. A body of 1,500 students from Cooper Union marched by carrying flowers, singing hymns. The bells of all churches were tolled. The whole city mourned, as it had not done since, eighty years before, the funeral procession of George Washington moved through the streets."



PETER COOPER'S OLD TOM THUMB, AS RECONSTRUCTED FOR THE B. AND O.'S FAIR OF THE IRON HORSE

Facsimile of Editorial which appeared in the Feature Section of the Baltimore Sun., Feb. 10, 1929.

THE MUSEUM

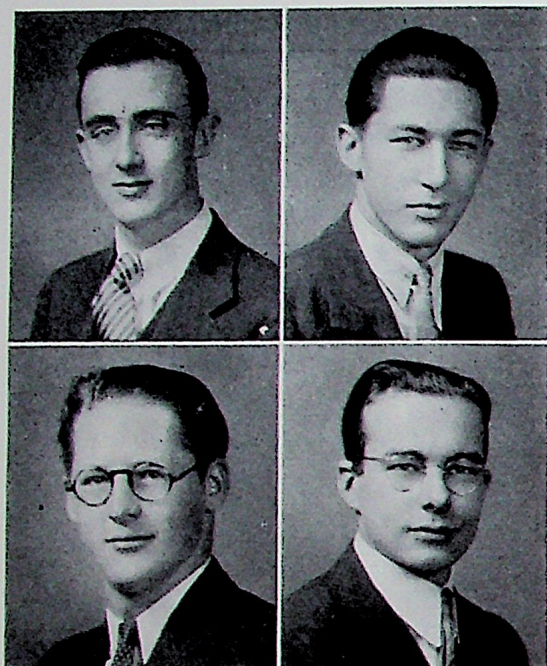
The Museum for the Arts of Decoration was opened in May 1895 by the daughters of Abraham S. Hewitt and was developed under their care to its present fine state. The museum was modeled after the Musée des Arts Décoratifs in Paris.

The East Corridor contains the Pierpont Morgan Collection of textiles, including Early Christian, Egyptian, and Byzantine tapestries; ornaments, weavings and embroideries from the 3rd to 10th centuries; and silks, brocades and printed linens of Persian, Byzantine, and Saracenic origin. There are several other excellent collections of textiles.

Rooms of special interest are the following: Room 3—containing the Decloux Collection of English and German furniture of the 17th and 18th century; Room 5—with old French furniture from the 17th century, woodcarving from Flanders, Italy, and England, etc. Collections of laces, plaster casts of foreign sculptures, fountains, vases, etc.; paintings, and other objects d'art complete this fine museum.

Classes of 1937

INSTITUTE OF TECHNOLOGY



President—Harry Taylor
Vice-pres.—Harold A. Dorfman
Secretary—Cornelius Kirby
Treasurer—Hamilton Gaillard

"Fifty million Frenchmen can't be wrong," but one hundred Freshmen can. We entered the Institute of Technology on September 25th heaped in self-esteem and as proud as the cat who had just earned her keep. But we soon learned that there was a destroyer prowling around the place—one which could trace its ancestry to those distinguished and formidable breeds; Analytical Geometry, Descriptive Geometry, Professor Hope's lectures, and what have you. It was a carnivorous animal that seemed to prefer the taste of Wayward Freshmen to that of Conscientious Freshmen. So some of us went our way.

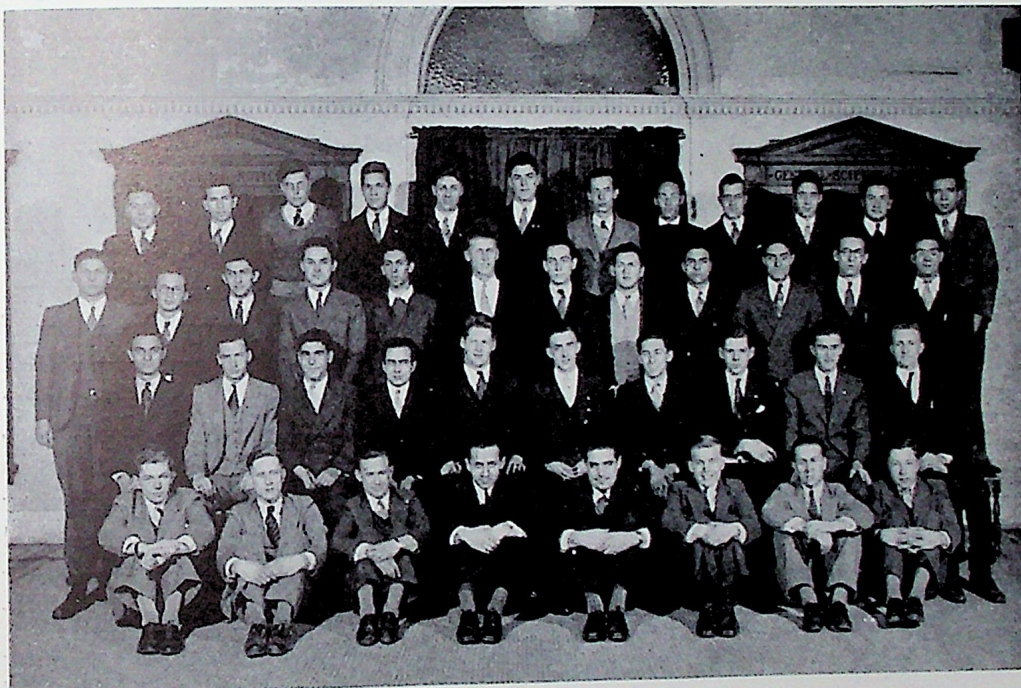
Despite our experiences we had a good time, with both the faculty and the students supplying the fun. The highlight of the Physics lectures was the time our Physics

instructor played tug-of-war with the Magdeburg hemispheres. Freddie Freshman copped a few laughs when he tried to ink his tracing from right to left with his pen held backwards. Always clowning, he used to play soldier in the drawing room—digging trenches. Maybe he still does. The Descriptive Geometry instructors looked very active when they demonstrated the intricacies of the subject. (We fear the stage has lost some very fine contortionists in these instructors.) Misery loves company. We always enjoyed that look of insignificance which adorned the faces of our neighbors when Professor Hope concluded one of his more complicated lectures. (Of course it was pie for some of us.)

The class had a successful year in extra-curricular activities. The freshman swimming team trounced the seniors and juniors. The sophs did beat us; but it could have been worse. The class was organized and had money in the treasury by the first week in December. Then came the Christmas holidays and with it the opportunity to catch up on some work. Did we? At any rate we all had a good rest.

After the mid-term exams, our hair might have been a little whiter, but we still have to get by the finals. We're not discouraged, and almost every one of us feels that he, or she, will be back next year. The she by the way constitutes fifty per cent of the co-ed enrollment of two in the Day Institute of Technology.)

Being the pride of Cooper Union, the class of '37 is doing its best to maintain a high scholastic record for the present year. When the term is over, the students want to look back and be able to vindicate the trust put on them by the rest of the school. It is with a hope for an enhanced future that causes the striving of the students forward to higher goals.



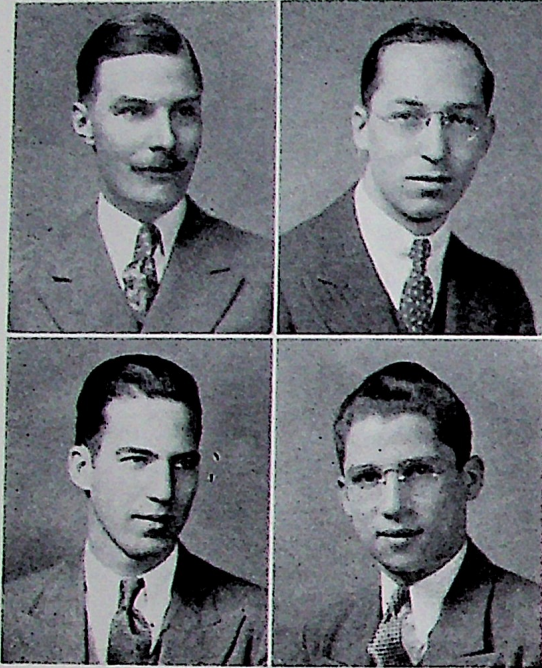
Top Row—S. Baum, M. Gittlemann, I. Margolis, S. Ipsen, W. Feingold, M. Hutchins, G. Green, J. Haas, P. Kolesnikoff, F. Hahn, C. Kenny, R. Goodman.

Second Row—J. Loiacono, L. Thoman, A. Russo, A. Merlin, E. Jaffe, S. Rothfeld, G. Varnum, A. Lehrer, R. Umbdenstock, J. Landsman, P. Huryn, F. Hashmall.

Third Row—W. McShea, J. Schaefer, F. Wythe, H. Dorfman, H. Taylor, C. Kirby, H. Gaillard, I. Rosen, L. Schumann, A. White.

Bottom Row—E. G. Scheibel, W. Flynn, A. H. Schallis, B. Schwartz, W. L. Schmidt, J. D. Kerstein, E. De Ritter, G. Brown.

ARCHITECTURE



President—Martin Munzer, Jr.
Secretary—Emil H. Goerner
Vice-pres.—Daniel Solins
Treasurer—Irving Friedman

Cooper's doors were opened this year to the influx of new spirit and blood, whose faces bore the expression that they were a happy lot of freshmen, glad to be within the walls of our Alma Mater and pledged to be worthy Cooperites.

The first few days were spent mostly in getting supplies and material and listening to a few disciplinary talks, and then the long journey through the year got under way.

A few who couldn't stand the pace dropped out, some were called away because of circumstances, but those who have reached the end will describe the trip as follows: We started off in high hopes and spirits. Of course, we realized it would not be all

down-hill going, yet few expected to hit the high spots within a week after starting, but such was the case. It was work and more work, until it looked as though everyone was going to turn back. Those of us with the greater courage and stamina foresaw the importance of leadership, and quickly banded together and called a meeting at which we elected the members, whose photos so richly adorn this page, to represent our class in all matters pertaining to scholastic activities and to work out a plan to bolster the morale of the disillusioned freshman.

This action of ours was the turning point of victory, for we began to get reports from our representatives that here in Cooper was to be had not only a knowledge of learning but also many social functions affording contact with upperclassmen and offering us a chance to show that we had members with sufficient physical stamina to withstand all the work they could throw at us and still have enough to play football, basketball and baseball.

In these sports we were well represented and those performing have done so in a manner to bring credit to our class. The high light of the year was the dinner dance, which turned out to be a sparkling success.

It has been these good times, that have cheered us when things looked the darkest and have brightened our spirit and enriched us with many new friends, enabling us to go on to complete the hard, eventful, yet joyous trip. As we approach the end and look back, we have vision of memories long to be cherished and by our experience and knowledge gained, we are looking forward to our coming year with higher hopes and greater anticipations—a little tired but much wiser. .

The class of 1937 looks back over the happenings of the past year with the hope that, should the coming years bring to them the satisfaction of the past, they can go on, knowing that their struggles and efforts have not been in vain towards the enhancement of the future.



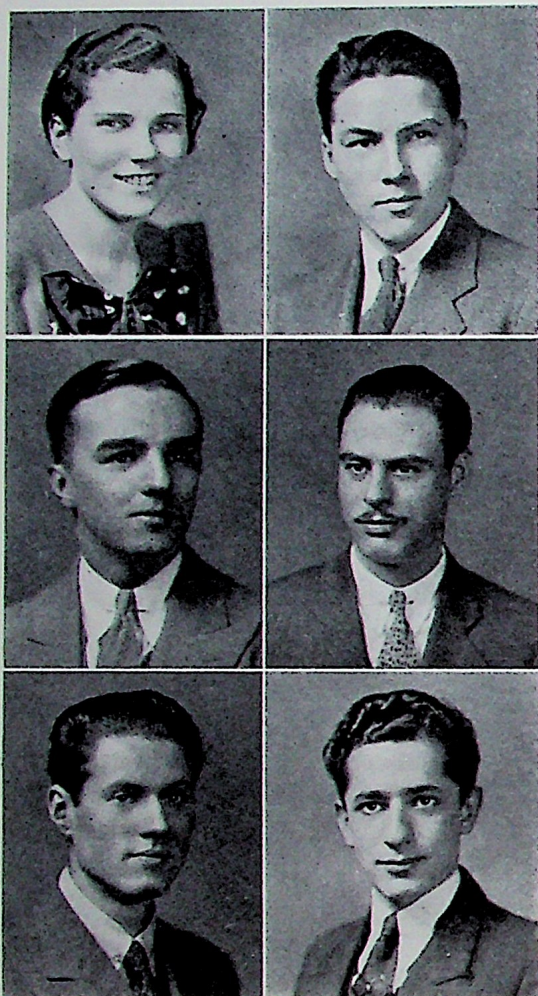
Top Row—I. Rubin, J. H. Schwartz, H. Rauch, S. Dipierdomenico, H. Kochman, M. Levine, L. Fleischman, C. A. Fredrickson, G. Solomon, M. Sornik, H. Wechter, R. Tettelswaig, N. Wolfe.

Second Row—V. Prestigiacomio, R. Smith, S. I. Helfand, J. Markowski, L. Maschi, S. Friedman, T. Randmetz, J. Mishure, J. Kaplowitz, E. H. Goerner, J. Greenberger, L. Trentin, N. Slonim.

Third Row—J. Eisenbach, J. Colletti, R. Miller, D. Solins, M. Munzer, Jr., J. La Barbiera, M. Drake, I. Friedman, A. Racz, T. Wittenberg, H. Black, I. H. Papiroff.

Bottom Row—A. De Leo, A. Bobkowski, W. Murray, J. Racz, W. G. Gentile, V. J. Gorlach, S. Schulman, F. Blaha, E. Friedman, F. Bello.

FREE HAND DRAWING AND MODELING



President—Edith Pomerantz
Vice-president—John Shelton
Secretary—Norman Egdell
Treasurer—Clarence H. Barber
Representative—Bernard Kasoy
Representative—George May

are accepted, share a common first year work. As drawing and modeling are considered an inseparable part of a student's background; pictorial composition of great importance, and design—not necessarily involving the use of the human figure—of equal importance, these four subjects are given in the first year.

Since instituting the same entrance examinations for all applicants, the grade of student passing is noticeably better than was the case prior to the institution of these examinations. It was decided this year that there was room enough to take into the first year one hundred and eighty students in the Drawing and Modeling Department. No instructor in the first year should

All students entering what is now known as the Drawing and Modeling Department of the Night Art School work in common during the first year. Until two years ago sculptors were admitted under the discretion of the instructor of the Ornamental Modeling Department. Students were admitted under separate examination into the Commercial Design Department, and by still another examination into the Fashion Illustration Department. The Free Hand Drawing Department, which comprised the greatest number of students, admitted its applicants on personal interview and inspection of the student's work.

By these methods there was no standard of competence agreed upon. The capacity for learning on the part of the students in the various departments was very uneven. Each method of examination had its shortcomings, so that in 1932 entrance examinations were established in an effort to measure similar responses from applicants for whatever department they chose to enter.

These entrance examinations are now given to all applicants for the Night Art School regardless of their choice of department. With the exception of those people who qualify for the furniture design course, all those who

be asked to teach more than a group of thirty people. With the exception of life drawing, practically all of the first year work is accomplished by solution of problems with definite conditions of dimension, subject matter, design and medium. Composition problems in particular demand outside work. Therefore, the schedule was cut from five nights to four nights a week to give students either time off for composition home work, or time off for relaxation.

It is a natural thing for children to try and make pictures of mental images. They do so without any fear and the interesting quality of their pictures is dependent entirely upon their ability to observe.

A young child recently said, on being asked how it was that he drew so well, "I see something in my mind and simply draw a line around it." This shows a courage in graphic expression that is very lacking after we begin to grow up. To rediscover this honest power therefore, students are required to make pictures at the outset of their work regardless of their apparent ability or inability to draw. It is only through their competence in stating mental images in terms of drawing, that students can really know how well they can draw. It also becomes more obvious to an instructor what he has to teach them.



Top Row—A. Peddy, J. Fink, T. Eron, C. C. Barber, W. Cramblitt, J. Friedman, R. Gittens, L. Grossman, V. Evanoff.

Second Row—F. Cividanes, E. Byrne, B. Elkind, B. Moglansky, M. Danforth, M. Kearney, I. McGill, M. Cooperman, H. Beutel, J. Covit.

Bottom Row—P. Mandolini, J. Jung, C. Dalldorf, M. Simring, G. Eriksen, L. Horowitz, W. Ballaban, G. Hoffman.

There are of course other routine matters concerning drawing and modeling that students have to be taught. It is confusing to a student to be confronted at one time with the factors of line, form, color and action. To my mind, it is possible to study these facts individually, and in order to produce a drawing, which in the end is good, one simply has to put together and refine the above mentioned factors. Yet these factors are uninteresting unless they are related to nature, and nature is pretty uninteresting unless we see it and feel it, or find ourselves reflected in it.

Drawing is not merely a theory, nor a series of techniques, but a means of self-expression. It is a mode of stating things that we think. It becomes more important when we state things that we know, and more important still when we state things that we believe on account of our knowledge. The Faculty is pretty much in agreement on the last observation, and each member of the Faculty is given full responsibility in teaching the steps leading to knowledge and thought. For that reason, it is advisable in so far as possible, to have each section of students under one or not more than two members of the Faculty, for a sufficient length of time, so that the individual members in the class will understand what the teacher is driving at, and the teacher himself, knowing his students over a sufficient length of time, will know the students' limitations.

Believing that industry in work, integrity of purpose and an open mind are prerequisite qualities in a student, the Faculty is the happier for having students without any previous art training, as it is easier to build from the bottom up.

The courses of the first year are aimed as low as possible in training, so as to really make a good beginning. The present schedule of the school permits a student in four years of full attendance to remain with us less than one thousand hours. That amounts to one hundred and twenty-five eight hour working days, or about a half of a year in any workshop. Who could consider himself trained in art with one-half year of training? In the light of this short time, there is a certain amount of comfort to the students in that it is spread out over four years, and that the last quarter of the time that they are here, they are four years older than when they started. If they are diligent, honest and hard working, and their instruction has been interesting and has enriched their minds, the intervening time through the summer months can be put down to experience which should not be lost to them.

This year, for the first time, drawing from the plaster cast has been dispensed with. The casts of beautiful examples of Greek and Roman Art are fine, but they are not a live issue to the person studying drawing. The live issue to a person studying drawing is himself, his family, and his environ-

ment. These three things are the things that he should know best, and in knowing them best, they should be the three things he should be able to draw best. Modeling has been added to drawing in this year and given equal emphasis in both time and importance. The students draw from the human figure for two weeks and they model in plasteline for two weeks, alternating this schedule throughout the year, so that they will be able to consider themselves equally proficient in either graphic, or plastic expression. That such a schedule has been a wise move on the part of the Faculty has been amply shown in the results of the students' work. Many of the pieces that have been modeled are of sufficient value to be cast in plaster. Though it isn't possible at present to continue drawing and modeling together after the first year, it would be advisable to do so in the future to enable the student to attain more facility in these two forms of expression.



Top Row—K. Reeves, W. Pons, J. Rowe, H. Rosenberg, A. Lathrop, J. Petersen, L. Pinter, H. Pickhardt.

Middle Row—R. Rief, B. Berman, A. Radoczy, A. Perez, L. Kester, J. Spektor, S. Samuels, J. Fogel, W. Rose.

Bottom Row—M. Holmes, D. Rabinowitz, L. Roberts, L. Reynolds, J. Fox, M. Shearer, E. Pomerantz, R. Ihlenburg.



Foundation Building

THE ELEVATOR

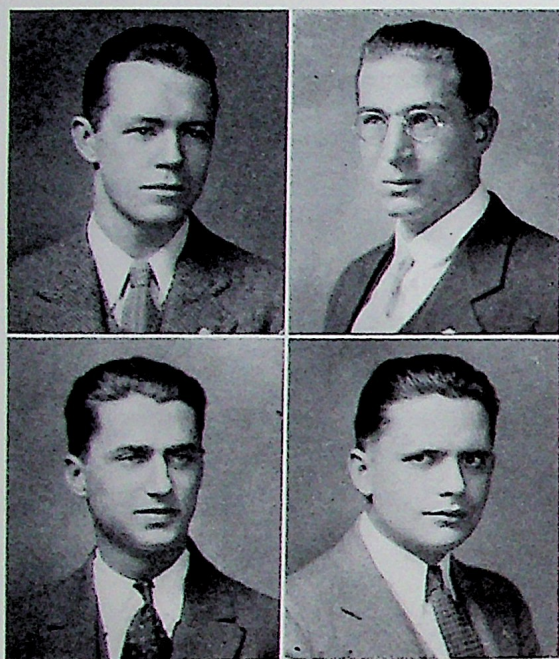
Cooper Union was the first public building to have an elevator shaft. No commercial elevators were obtainable at the time the building was opened, but Peter Cooper foresaw their advent and prepared for them. The elliptical shape of the shaft gives it added strength.

The first elevator used was of the Water Balanced Type. As this type was first brought out by Cyrus W. Baldwin in 1869, some ten years must have elapsed before an elevator ran in the shaft. In this type of elevator, water was pumped to the roof tank and allowed to fall in a bucket which was the counterbalance to the car—hence the name. The “Niagara” pump which was used is still in the basement engine room, and the pipe which conveyed the water to the roof tank is now used as an exhaust pipe for the heating system.

This elevator soon proved unsatisfactory and was replaced in less than two years by a McAdams and Cartwright steam elevator which was used until 1914 when the present machinery was installed.

Classes of 1938

ENGINEERING



President—John J. Morrissey
Vice-pres.—John J. Weipert
Secretary—Herman C. Hornickel
Treasurer—Arthur W. Burke

The history of the Class of 1938 is in the main, the history of its studies. Inaugurating a new curriculum for the Night School of Engineering, it has, with varying success coped with the difficulties of acting as pace-makers and pioneers. Imbued with the indomitable spirit of thirsty souls eager for knowledge, it has delved, if not profoundly at least adequately, into the intricacies of the quantum theory and atomic structure, hyperbolic paraboloids, force diagrams, and social sciences. Undismayed by the battle-scars honorably won in conflict with studies in its freshman year, it continues its pursuit of knowledge, ever striving to attain that elusive goal—success. The class has learned that to seek ingress into the engineering profession necessities the mastery of

a host of difficult studies. With this in mind it has adjusted itself to the new conception of the requirements of engineers and is moving onward—more sure of itself. The individual members of the class have decided in which fields of engineering they wish to enter, and the close of this year means the parting of the ways for a great many of them.

With the election of class officers in October, the class once more began to function as an entity, giving freely of its talents to the support of school and class activities. Mr. Morrissey was elected to the office of president, and Mr. Weipert, Mr. Hornickel, and Mr. Burke were elected to the offices of vice-president, secretary, and treasurer respectively. Friendships, dormant during the summer vacation, were revived and renewed. New friendships were made, welding into a compact body what had hitherto been but an uncollected freshman group. A heartening spirit of esprit de corps soon made itself manifest, brought forth by the common struggle to gain knowledge and to progress. A spirit, not of blaring bugles and unfurled flags, but the steadier, deeper spirit of men united in a common cause, striving to reach a common

goal. Not the boastful spirit of "we came, we saw, we conquered," but the maturer spirit of "something attempted, something done, has gained a night's repose."

Now that the students of the Class of 1938 have learned how to orient themselves, it is just a matter of application, hard work, and perseverance to insure each man's successful completion of the course.

Because this class is the first of the new six year course, its progress throughout the year is carefully noted by all the school. There was some doubt at first as to the capacities to be expected from the members, but this fear was soon dispelled by the character of the work turned in by the majority of the students the first year, despite their heavy schedule. There is no doubt



Top Row—P. Lemchen, A. Levada, S. McWhorter, H. Hornickel, C. Luhrs, N. Lipowitz, W. Heiser, G. Hill, S. Heller, B. Kane, A. Oetting, L. Hefle.
Middle Row—A. Noss, H. Franz, M. Charnick, H. Oats, J. Pinto, J. Lieber, H. Steckler, E. Paul, G. Phillips, F. Albrecht, W. Kaufman, S. Koretzky.
Bottom Row—J. Schieren, J. Schlanger, S. Reich, M. Sternberg, H. Weipert, H. P. Sonberg, H. Nelson, J. Greenberg, B. Kettleman.

now as to the abilities of the students, and the best can be expected of them as a class. Because of the hard year just put in by the students, a deep feeling of comaraderie has developed amongst the members of the student body, making one body, out of the disjointed few who started in 1932.

The class of 36, looks back over the events and happenings with the hope that, should the coming years bring to them the satisfaction of the past, they can go on, knowing that their struggles and efforts have not been in vain towards enhancement of the future.

In conclusion, commendations are due members of the class, who have shown the spirit which is symbolic of an institution for the advancement of science and art, our Alma Mater, The Cooper Union.



Top Row—M. Bruckenthal, J. Gertler, W. Green, M. Gigante, F. Garner, H. Gross, C. Greenfield, R. Hockenjos, S. Guzzardi.

Second Row—A. Burke, J. McAleer, G. Freese, K. Chichester, J. Schieren, S. Sigman, J. Gross, H. Maxwell, R. Previti, S. Saperstein.

Bottom Row—H. Weiner, L. Harris F. Muhlsteff, J. Morrissey, A. Greenberg, J. Gumbrecht, S. Shapiro, G. Fitzgerald, J. Kuzmick.

THE IRON BEAMS

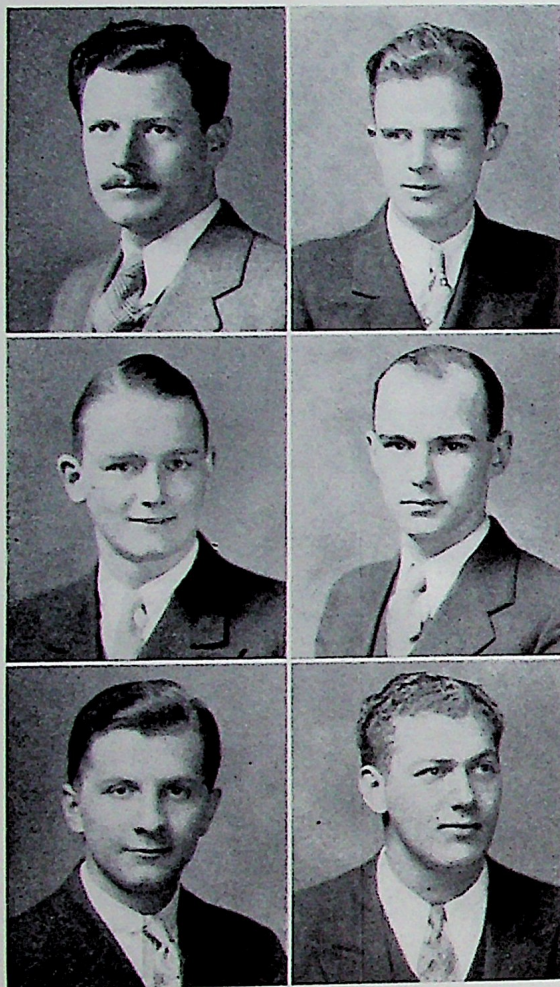
Cooper Union was the first thoroughly fire-proof building of cement and steel construction. Peter Cooper first conceived the idea of using steel girders instead of wooden beams when he found that he had a quantity of bridge iron for which he had no immediate market.

In those days, long iron girders were built to stretch across streams. Peter Cooper thought that these could be used in buildings, too.

In the construction of the second floor, Cooper used the beams of railroad rails. Realizing their weakness, Cooper imported from England, at a cost of \$75,000, a vertical rolling mill in order to roll beams of the necessary strength. The first wrought iron structural beams ever rolled in America were sold by Mr. Cooper, at a handsome profit, to Colonel Harper of the well known publishing house, who used them in the construction of the Harper Building on Franklin Square. The second batch rolled were used in the Cooper Union, the first public building to be so constructed, and the prototype of the modern skyscraper.

Classes of 1939

ENGINEERING



President—George Kent
 Vice-pres.—Frank J. Aussenhofer
 Sec.—Herbert A. Bahrenberg
 Treasurer—Elliott F. Fischer
 Rep.—John G. Matich
 Rep.—Hyman A. Sonberg

In no uncertain terms, with an enthusiasm new to the halls of Cooper Union, have the members of the class of '39 made themselves conspicuous. Naturally, one of the first extra-curricular activities was the election of officers. Each of the seven sections elected its necessary representative and the seven delegates then held an election among themselves to decide who were to be the four officers. Evidence of the initiative of this class was shown in the creation of a board of advisers, consisting of the remaining sectional representatives.

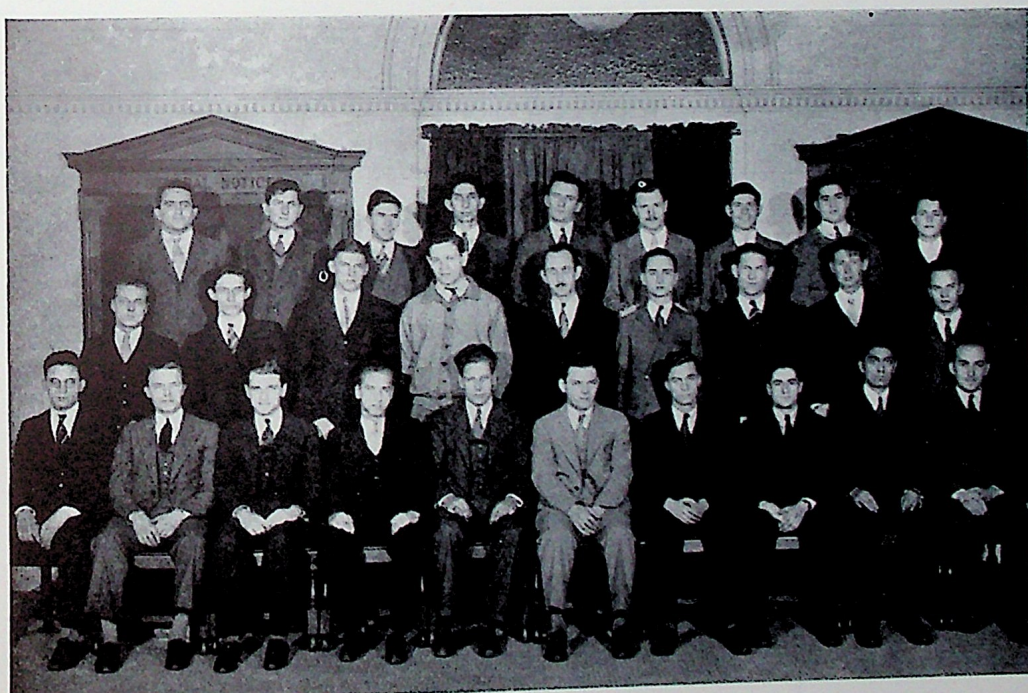
Not long after the installation of officers, in keeping with the tenor of the short inaugural address by our President, Phil Hagerty, the class of '39 again showed its decidedly new and aggressive spirit by having a class get-together, aptly called the "Frosh Feed." The Freshman class was well represented, notwithstanding the fact that a large portion of its members were feeling "dat o'l debbil" depression, more keenly than the rest of us. During the course of the evening,

we heard a few congratulatory and inspiring words from the instructors present, among whom were Messrs. I. W. Cumberland, K. E. Lofgren, D. C. MacLean, F. J. McMackin, S. B. Sheridan, and J. J. Tanzola.

Mr. Sheridan, our first speaker, set a good example by his brief remarks and well chosen words. Our next speaker, Mr. Lofgren, in contrast to his usual classroom masterful manner, followed the example set by the opening speaker. Perhaps shyness rather than thoughtfulness was the reason for this(?) But alas, and alack, our next speaker, Mr. Cumberland evidently

wanted to illustrate his teachings about public speaking, and consequently the class received quite a talking-to. Some students sitting near the table of honor contend that they saw his knees shaking violently and the table served a double purpose that night. We wonder at the truth of this statement. Although late in arriving, Mr. Tanzola was next to say a few words, and much to the surprise of his students, he lacked his usual classroom bluster. It may have been due to the change of scenery. And now we present, Mr. MacLean, the personification of jollity. He did not bore us with any of his profound theories but pleased the then hilarious assembly by his short and sweet speech. The last speaker, Mr. McMackin was called upon. Using his somewhat comical presentation as a beginning, he proceeded to amuse the gathering with some acceptable humor. We must not forget the few promising words spoken by our President, Phil Hagerty.

The program was exceptionally well arranged, and the talent corralled by Jack Sonberg was greatly appreciated. A vote of thanks is extended to him by the class; also to Mr. Lou Saxon, who acted as master of ceremonies; to the team of Sam and Dave for their comic antics; and to Eddie Dort for his dancing specialty. We noticed among others present, several upperclassmen



Top Row—H. Kessler, J. F. Kohn, A. Marcus, H. Eisenstadt, J. Czander, G. Kent, R. Goldberg, M. Laitman, M. Dworkowitz.

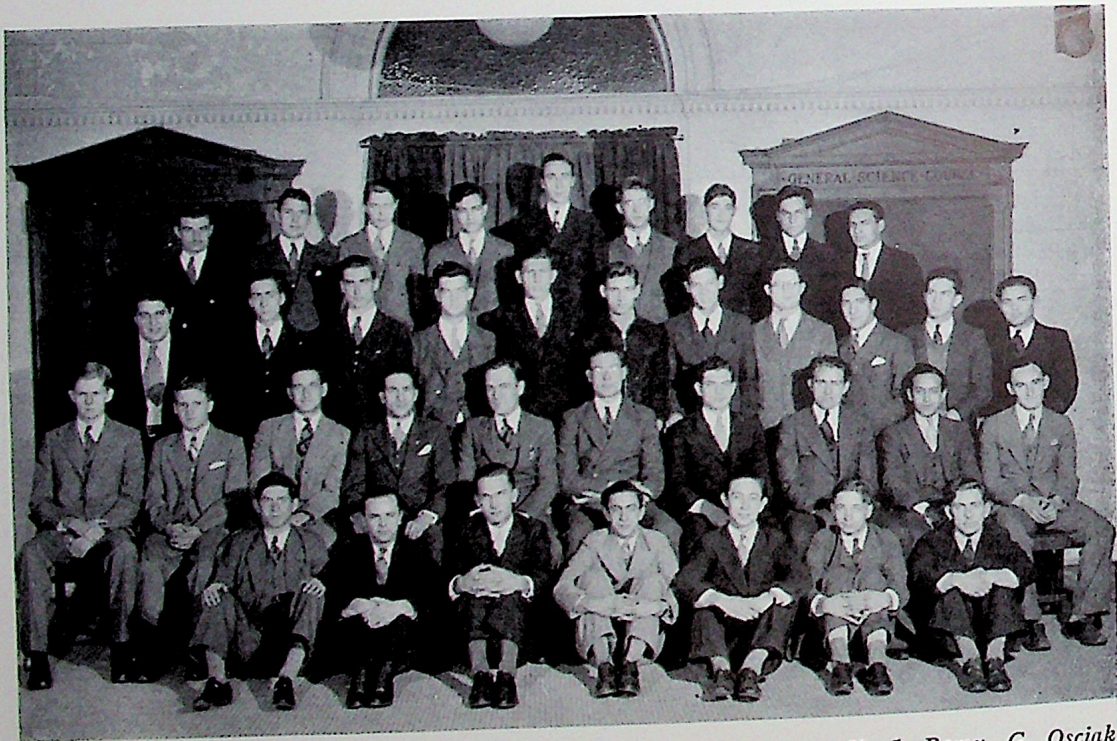
Second Row—D. W. Wolejsio, P. Vestigo, W. Hommes, E. Kohler, A. Greenhut, F. Hoban, W. Frank, J. Brady, F. Dreschler.

Bottom Row—R. Starr, F. Schmitz, O. Schindler, L. Tobias, W. Wuorinen, V. Dobler, H. Allison, I. Atkins, G. Ksayian, L. Lefkowitz.

and members of the Phi Sigma Omega and Omega Delta Phi Fraternities. Bill Fisher, our treasurer, was pleased to report that his records of this affair were written entirely in Blue Ink!

With such a fine start, the men of '39 were encouraged to continue. As a consequence, the Freshman Frolic was planned. Its success is now one of our pleasant memories. Again our instructors were invited guests: this time their charming wives also graced our festivities.

Social activities did not monopolize the little extra time and energy of our men, as was evidenced by their wholehearted support of the Athletic Association. We realize the advantages which have been ours through the efforts of the Alumni. We fully realize how the previous men who attended Cooper Union have been handicapped by not having a gymnasium for their own private use. We can see the good sport and recreation they missed by not having a pool such as has been provided for the men now attending the school. Because of all this, we intend to do our share to provide for the continuance of these advantages. We gratefully acknowledge the gift of the former members of the student body and wish to extend to them our sincere appreciation.

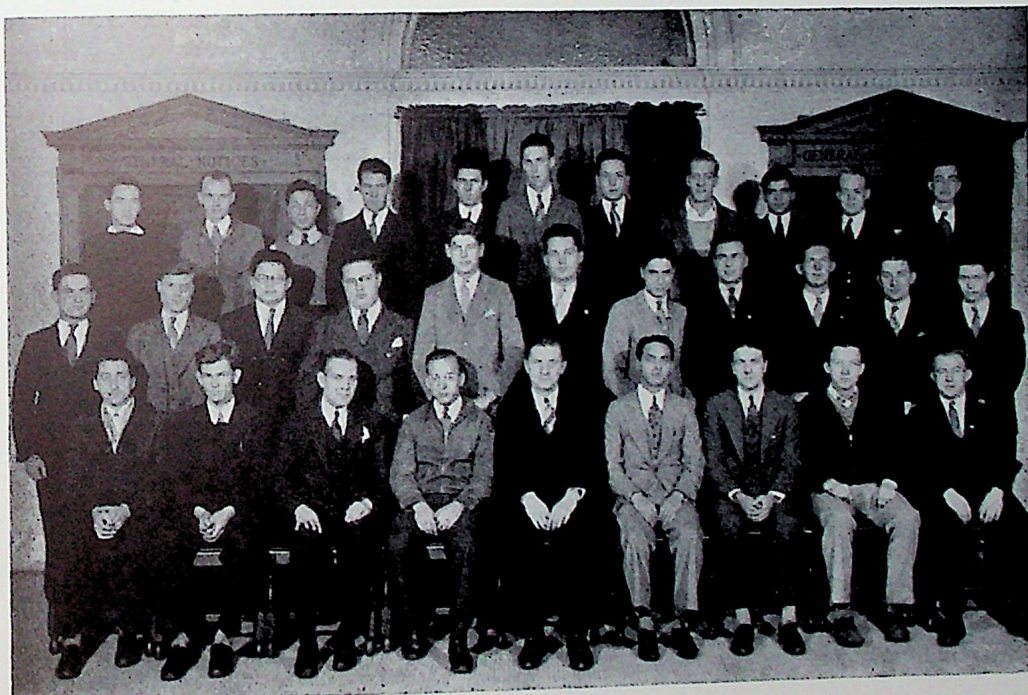


*Top Row—G. Frankenstein, G. J. Bette, A. H. Quist, L. N. Rendano, V. J. Remy, G. Osciak,
H. Berkowitz, E. H. Bernstein, H. Bricchi.
Second Row—M. Aronowitz, L. Marino, V. F. Everman, S. T. Evans, S. L. Horn, D. Keiserman,
W. Joseph, S. L. Esner, A. De Angelis, J. Weber, I. Taylor.
Third Row—T. J. Barry, G. J. Bartelheim, W. Charney, R. Burch, T. Bucciarelli, L. Balk,
L. Retzker, W. H. Hewitt, S. Kogelman, M. Gordon.
Bottom Row—R. Goldberg, A. W. Strom, A. A. Budde, H. Wolff, S. Rabinowitz, R. Koliner,
B. Fuerst.*

We are proud of our unusual initiative and ambition in publishing a Freshman newspaper. At this writing, we have distributed one issue and are planning a second. The first issue was distributed without charge; in the future there will be the nominal charge of two cents per copy.

The publication, entitled the SURVEY, is a four page miniature newspaper. Although it is edited exclusively by Freshmen, it gives news of interest to the entire school besides special Freshman news. We were pleased to receive the comments of interest and encouragement after the first issue.

Early this term our president, Phil Haggerty, unfortunately found it necessary to resign. His successor, George Kent, has ably led the class in its many, varied activities since his election.



Top Row—W. J. Fitzpatrick, J. W. Fischer, P. Lehrman, W. Webster, M. Lewson, J. Middleton, A. Danner, W. Govertson, L. Coppolino, J. E. Tegethoff, A. Conklin.

Second Row—D. Baron, W. C. Schumann, I. Ruslander, C. Glickman, A. Schwiek, J. J. Santanna, J. Dwoskin, B. A. Fleck, D. Newman, J. Nyitray, E. Pancsofar.

Bottom Row—A. Levine, P. Kunysz, S. Laimos, L. Salzberg, J. G. Matich, J. Marchetti, W. Meringer, D. Mahoney, G. Nuremberg.

It is with pleasant anticipation that we look forward to the renewal of our friendships next year. In order to promote closer amenities of social intercourse, it is our intention to start the ball rolling early for many pleasant social events next year.

We also wish to take advantage of this opportunity to again express to the faculty our appreciation of their whole-hearted efforts to advance us toward the goal which we are seeking. Thus far, the machinery of the lecture hall, quiz and recitation rooms has not ground out from our lot another Goethals, nor a Taylor; yet, judging from what we have seen and heard, the high-water mark of our predecessors in these halls must be deeply engraved, at a great height, if it is to escape obliteration.



Top Row—L. Pepkowitz, A. Savacchio, A. Somson, C. Schenfele, H. Woebke, H. Bahrenberg, F. Albert, W. Wasserman, M. Kusevich, P. Swiderski.

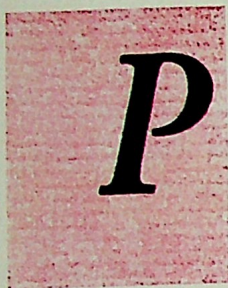
Second Row—J. Engle, M. Brown, R. Simeone, A. Poole, M. Trevesky, S. Phillips, W. Pflug, C. Hauck, H. Weber, J. Volk, R. Wiesendanger, A. Hasselbach, L. Lefkowitz, D. McLaughlin.

Third Row—H. Rosen, C. Coleman, E. Roxburgh, E. Roszkowski, J. Korwasky, H. Siesholtz, L. Shapiro, S. Chernoble, E. Jaudon, I. Moskowitz, J. Weichbrod.

Bottom Row—J. Barack, J. Amann, S. Sarch, E. Rader, F. Aussenhofer, E. Berman, M. Barnett.

Activities

PETER COOPER, MAN OF VISION



PETER COOPER'S mind was not actually one of great invention, but rather a mind possessing a great aptitude for contriving and perfecting things. He lacked the elementary training in the principles of mechanics and constructive drawing so necessary to the successful completion of great inventions.

He had, however, a sound good sense and a practical knowledge which directed his inventions to some practical and useful end connected with his own business or with some object of public interest. Perhaps more important than this, Peter Cooper's talent for vision and foresight here, as in the field of education, manifested itself.

He had faith where others scoffed, and gave encouragement and material assistance to other inventive projects. The two biggest ventures with which we most usually associate Cooper are the Tom Thumb locomotive and the laying of the Transatlantic Cable.

The latter was probably the most profitable of Peter Cooper's undertakings. If it were not for the everlasting perseverance, indefatigable energy, and unconquerable faith of Peter Cooper and two or three others, the Atlantic Cable, it is safe to say, would have had to wait another fifty years.

The number and variety of contrivances of which Cooper was the sole or part inventor, is great. Not all of his ideas were practical but all formed the basis for some later invention. He worked out an idea for an arrangement by which canal boats might be driven by the power of water drawn from a higher level and moving a series of endless chains along the canal. This water wheel was actually tried out on the East River, but because of local difficulties was not developed. Most probably the use of this invention as such on a larger scale would not have been successful, but the endless chain, the cardinal principle of the scheme, is the basis of the famous Belgian system of river and canal transportation.

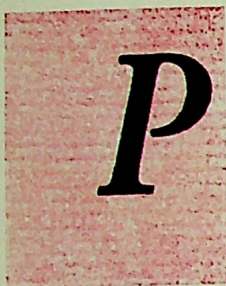
Among his other inventions or contrivances we find a long distance torpedo boat, a mechanism for utilizing the tides as a source of power and a lighter-than-air flying-ship, to name only a few.

Here it is interesting to note that Peter Cooper anticipated the modern elevator, in approving an elliptical shaft running from the bottom to the top of the Cooper Union Building.

Although Peter Cooper left no cotton gin, no sewing machine, no aeroplane, no radio or other single emblem of his inventive genius, his great efforts in the development of the Tom Thumb and the Cable, his many improvements and suggestions for mechanical devices, his foresight, gave him every right to the title, Peter Cooper, Inventor and Man of Vision.



PETER COOPER, MAN OF VISION



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EX POST



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John P. Roulett, Jr.
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Robert Weyand

Donald Wilcox

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1932

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Chairman

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1927

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THE 1934 CABLE

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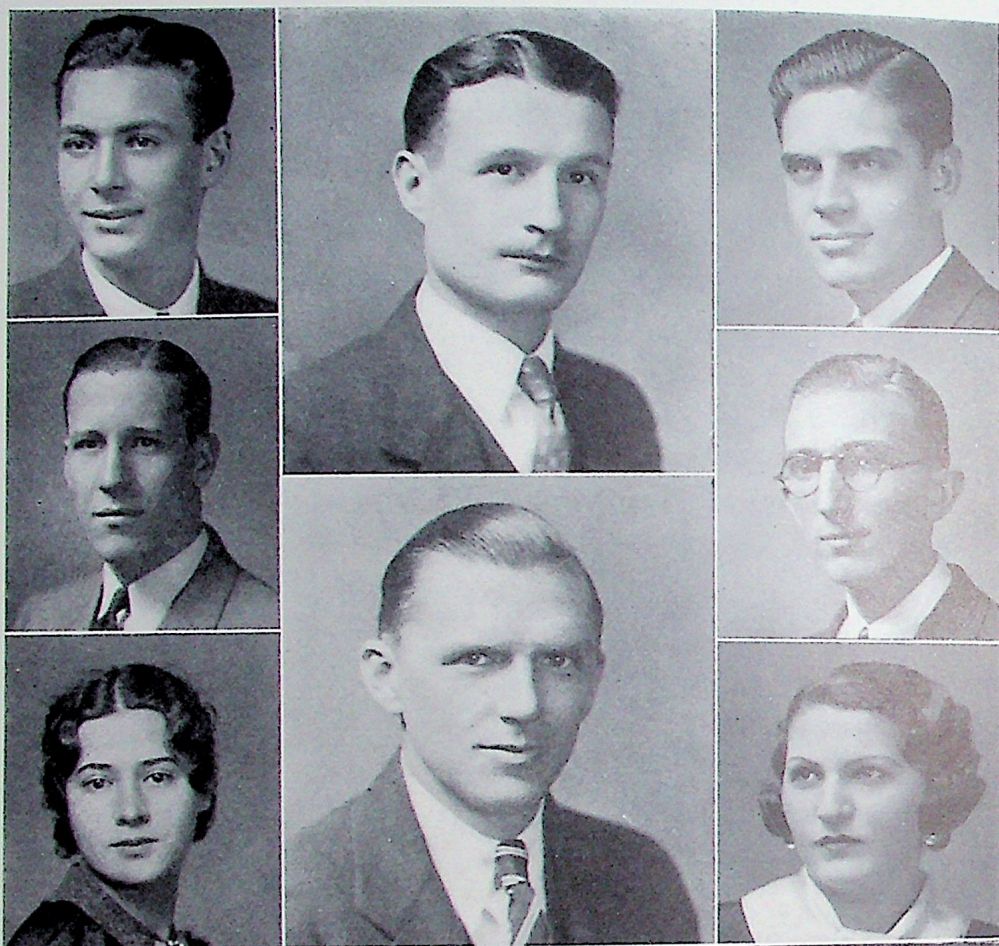
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THE 1934 CABLE

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THE ALUMNI FEDERATION



Henry D. Williams

The Cooper Union Alumni Federation is a Federation of the departmental alumni associations. Each departmental alumni association has complete independence and the Federation acts only as a representative of all of them in the matters calling for unified action. The Federation is composed of ten permanent members, two from each of the five Departments, and ten annually elected representatives from the different departmental Alumni. The Departments are (1) General Science, including Mechanical and Civil Engineering; (2) Electrical Engineering; (3) Architecture; (4) Chemistry; (5) Institute of Technology.

The Federation was organized about sixteen years ago after trial and failure of a General Alumni Association including all departments. It has attended to the celebration of Founder's Day, the decoration of the grave of Peter Cooper, the decoration of the monument of Peter Cooper in the Cooper Square, and the decoration of the bust of Peter Cooper in the Hall of Fame.

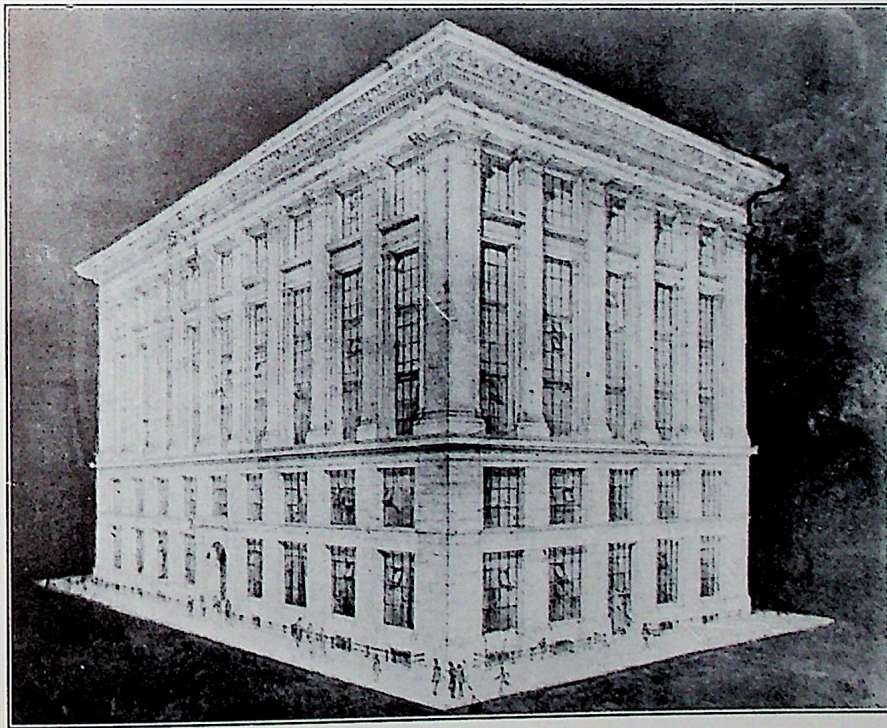
The first President of the Alumni Federation was J. Charles Riedel, General Science, '98. He was succeeded by Robert C. Coffin, Electrical Engineering, '14, who, in turn, was succeeded by the present President, Henry D. Williams, General Science, '85. The permanent members are General Science, J. Charles Riedel and Henry D. Williams; Electrical Engineering, Robert C. Coffin, '14 and Wilfred A. Miller, '08; Architecture, Edward A. Miller, '74, and William H. Wagner, '03; Chemistry, Alfred Hilbert, '01, and Christian Weaver, '03; Institute of Technology, George F. Bateman, '07, and Charles F. Giraud, '08.

The present officers in addition to the President are Edward A. Miller, First Vice-president; William H. Wagner, Second Vice-president; Alfred Hilbert, Secretary and Treasurer.

It will be noted that three members of the Faculty, Dean Bateman, Supervisor of Architecture Edward A. Miller, and Instructor J. Charles Riedel, are permanent members of the Federation, and this enables the Federation to keep in touch with faculty and student activities.

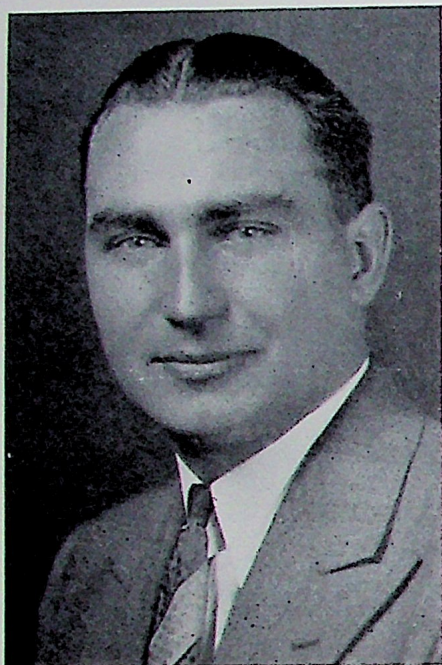
Originally there was only one engineering course in the Cooper Union. With this there was a chemical laboratory—the only laboratory—but there was no course in Chemical Engineering. There was also a course in Architectural drawing. The Cooper Union Alumni Association, composed of graduates of the engineering course, was the first alumni organization. Later, the Architectural Drawing Course formed an alumni organization. Then as the independent courses developed other organizations were formed.

The development of the separate courses in Mechanical, Civil, Electrical and Chemical Engineering and Architecture, brought about a variety of Alumni interests. An unsuccessful attempt was made to combine them in one all-embracing association. For a few years there was an organization, known as the Cooper Union Alumni Association, the original association of that name having surrendered its name and taken the name of the Cooper Union General Science Alumni Association. This resulted in giving the alumni two organizations to join, and weakened the departmental alumni organizations. The present federated organization of the Alumni appears to have solved the problem. It is only necessary that all the departmental alumni shall function actively to bring about the full opportunity for work that alumni can do and should do, in gratitude to the institution which gave them their education and started them on their careers, and in gratitude to the founder who made this possible.



Hewitt Building with proposed additional stories

ARCHITECTURAL ALUMNI



Philip S. Anthes

Executive Council

H. Wagner '03
F. N. Cantamessner '25
Philip S. Anthes '33

Executive Board

Pres.—Philip S. Anthes '33
Vice-pres.—Bertram J. Bertolamy '33
Treasurer—Joseph J. Fitzgerald '33
Secretary—Lester J. Davis '32

The Alumni of the Architectural School of Cooper Union forms the oldest graduate aggregation. The Chapter has functioned under various titles but maintained the same constitution, always re-ratified throughout the several modifications of titular appellation.

This Chapter of the Alumni endeavors in many fields of worthy benefit to mankind. Utmost in importance is the perpetuation of good will and the advancement of thought according to the high and unselfish precepts set for us.

Of the 630 members, 488 are enterprising in New York State, 136 in New Jersey, 4 in Connecticut, and one in each of the following: the District of Columbia, Honolulu, China and Russia.

It is merely stating what is already known when it is said that members of this organization are not only capable but often have burst into prominence, yet at those times no great surprise was registered by their fellow alumni. The principles on which their prominence is founded are simple and modest.

The organization operates through the medium of an Executive Board and Executive Council together with the collaboration of five sustaining committees in the field of Organization and Welfare, Ways and Means, Finances, Personnel, Research and Employment Advancement.

Activities include participation in the Founder's Day Celebration held on February 12th of each year, an annual dinner or social, arrangement of periodical lectures by prominent architects, business and get-together meetings.

Compliments are extended to all outstanding graduates who, humble in sentiment, believe that glory is not individual but universal and may be likened to the spokes of a wheel which sustain the rim by their inherent strength in their respective area. So it is with the phases of Architecture—sustaining forces to universal advancement of Architecture as a whole.

CHEMICAL SOCIETY

Executive Committee

President—Frank Spitaleri '25
Vice-president—Lester Kenworthy '30
Secretary—Carl Bussow '22
Treasurer—L. C. Greenhaus '22

Louis Fidell '25 G. A. Kauber '31
E. Frey '18 Frank Strom '30



Frank Spitaleri

In February, 1894, six years after the first class had been graduated from the Chemistry Course, a group of students and alumni organized the Cooper Union Chemical Society. Its avowed purpose was to promote scientific discussion and social intercourse among its members. Edward W. Roegner was chosen President and Charles M. Ruebens was chosen Secretary.

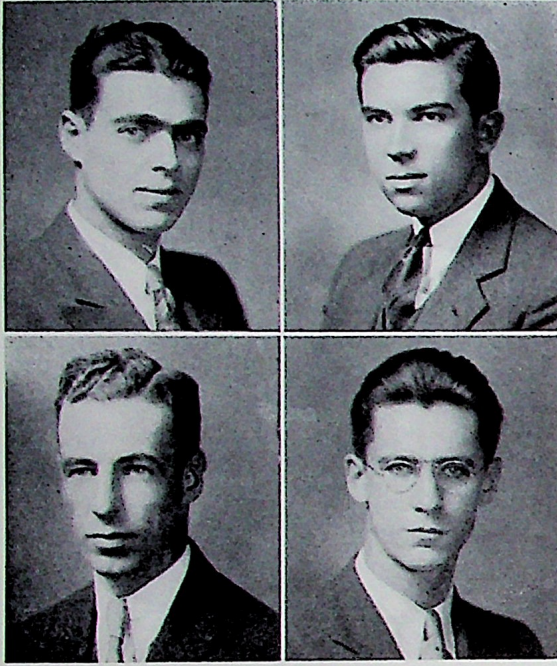
Meetings were held monthly and papers were read on subjects covering the entire field of Chemistry and extending into that of its sister science, Physics. At first the papers were simply retained in the Secretary's files but in 1906 the Journal of the Cooper Union Chemical Society was founded and flourished for many years. Unfortunately, its necessarily limited circulation and lack of advertising accounts made its cost prohibitive; it had to suspend publication after about ten years of service.

In 1908 the Society made provision for the presentation of a Gold Medal and a Diploma of Merit to any graduate of Cooper Union who had accomplished outstanding work in the field of Chemistry. These awards were not to be made at regular intervals but only when circumstances warranted.

Mr. Alfred Spice proposed in 1918 that the Society raise a fund for the erection of a building to be devoted to chemistry, leaving the Hewitt Building for the engineers and the Foundation Building for the artists and architects. A committee was appointed to carry out this project. Later, the Society co-operated with the Cooper Union Students' League in its annual entertainment, the proceeds of which went to the Building Fund. Until such time as the Fund is sufficient for its purpose, the Board of Trustees of Cooper Union will invest the principal and use the interest in the normal operation of the Institute.

The year 1933 was an eventful one in our history. At the annual dinner in January, honorary life memberships were conferred upon Victor G. Bloede, Henry C. Enders, and Christian Weaver. It was with great sorrow that the members learned later in the year that Mr. Weaver had severed his long connection with the faculty of Cooper Union.

AMERICAN SOCIETY OF CIVIL ENGINEERS



Chairman—Arthur A. Wechsler
Vice-chair.—William C. Stevens
Secretary—Byron K. Hartman
Treasurer—John B. Mayer

The functioning of the Student Chapter of the American Society of Civil Engineers as the normal outlet for the things that are in the mind and heart of the civil engineering student is the prime purpose of this organization. Through the helping hand of the Civil Engineering Department, especially Professor Foss, the Student Chapter has rapidly increased in strength from a membership of fifteen at its inception some twenty years ago to a present membership of a hundred. The Student Chapter forms the link between the theory of classroom and text-books and the realities, problems, and achievements of practical men, who have met their problems and conquered them.

At the many meetings, the student gains an unexcelled knowledge in engineering which cannot be grasped by instruction or by the reading of books. The members, all of whom have identical aspirations, can make known their opinions and get into the atmosphere of good fellowship which prevails. The papers and addresses delivered during the years covered the fields of dam construction, tunnel construction, aerial surveying and water supply, with the promise of many more. The Annual Convention of the American Society of Civil Engineers and the Convention of the New York Student Chapters were attended with great interest by the Student Members as one of the major events of the season. Last year saw the inception of the annual banquet of the Chapter and the plan is to be furthered this year as a still greater opportunity to develop that comradeship between members which often develops into enduring friendships.

The civil engineering student learns the intricacies of the profession at the meetings, which he can later apply to the problems of far greater magnitude than he can now realize.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

The A.S.M.E. was the first of the four student branches of the national engineering societies to be established at The Cooper Union. It was authorized by Council of the A.S.M.E. on December 16, 1920 through the efforts of the Day M. E. Class.

Details regarding its working, as well as the drafting of its constitution, were entrusted to the class of 1921. Two day school and two night school members together with Professor George F. Bateman met many times under pleasant circumstances to evolve a Student Branch which would conveniently meet the needs of both day and night student.

On this committee, prominent in the application of good judgment, was Professor Harold W. Merritt, then a student in the night Senior Class.

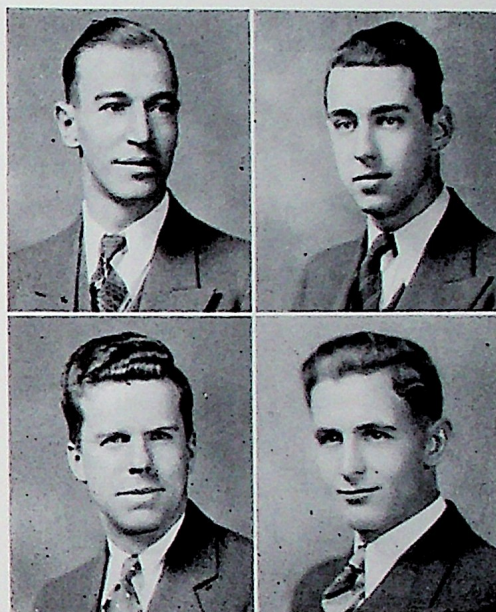
Dean George F. Bateman, then Assistant Professor of Mechanical Engineering was the first Honorary Chairman, being appointed March 7, 1921. Professor Merritt was the first student chairman.

The first meeting was held in the Physics Lecture Room on a Saturday in March, 1921. This meeting was addressed by Calvin W. Rice, Secretary of the A.S.M.E., by L. P. Alford, one of the vice-presidents of the A.S.M.E. and Ernest Hartford, the Society representative in charge of student branches.

The following year saw the establishment of student branches of the other national societies at The Cooper Union and it is interesting to note that the A.S.M.E. Branch took the lead in holding a joint meeting of all the Cooper Union Branches.

This meeting took place on Saturday evening, March 18, 1922 in the Physics Lecture Room, the aisles of which were crowded with standees. The features of the meeting were an address on "The History of Engineering" by Charles F. Scott, Chief Engineer of the Westinghouse Company, an

(Continued on page 295)



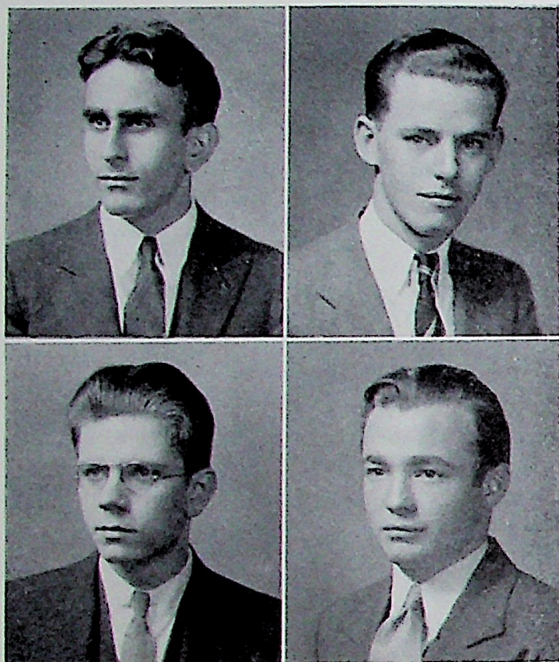
Chairman—John H. Petersen

Vice-chair.—Franklin B. Leslie

Secretary—Andrew F. Barry

Treasurer—Louis Foltan

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS



President—Harry Kihn
Vice-pres.—Richard A. Wylie
Secretary—Thomas C. Lehning
Treasurer—Lewis M. Evans

Day Branch

The Cooper Union Student Branch of the American Institute of Electrical Engineering is one of a national group of Student Branches organized in this country. The parent organization, representing the electrical engineering profession was founded in 1884 with the threefold purpose of advancing the theory and practice of electrical engineering and of the allied arts and sciences, the maintenance of a high professional standing among its members and the development of the individual engineer. The Institute has contributed greatly toward the remarkable progress in the electrical field during the past four decades and has been an important factor in advancing the

interest of its individual members and of the entire engineering profession.

The principal purpose of a Student Branch is to function as an instrument under the auspices of the Institute for aiding in the development of the latest abilities of the students, by affording them opportunities to carry on activities, such as the holding of meetings, presentation and discussion of papers, reports and abstracts and participation in visits and inspection trips.

Mr. E. W. Starr of the Electrical Engineering Faculty proved a fine first speaker, discussing in a very clear and interesting manner the methods used by the various electrical companies in training their "rookies." He gave some points to follow, if and when we get a job. This lecture was followed by a talk on "Radio's Future Magic" by O. H. Caldwell, Editor of the Electrical World and former member of the Federal Radio Commission. In his lecture, illustrated by slides, the speaker indicated the ingenious application of the vacuum and photo-electric tubes to many fields of endeavor.

The Executive Committee is planning an ambitious program for the remainder of the term, to include student talks, discussions, a combined discussion and social event, the planning of the afternoon and evening sessions of the Metropolitan District Convention and a trip to the N.B.C. Studios.

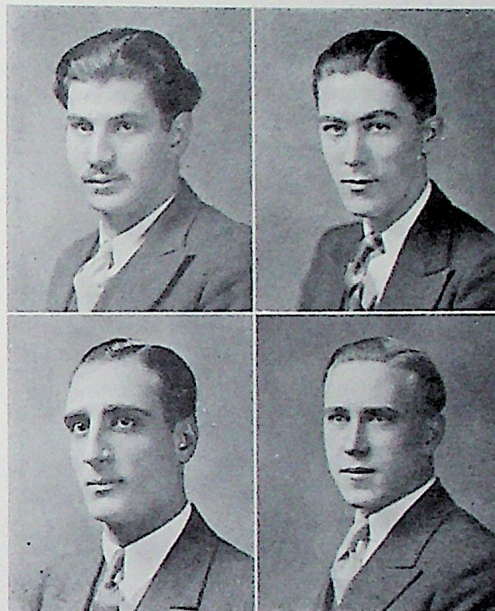
AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

Night Branch

Through the untiring efforts of our counselor, Mr. A. J. B. Fairburn, negotiations have been carried on this year which have resulted in the organization of the Cooper Union Night Branch of The American Institute of Electrical Engineers. The formation of this organization has created such enthusiasm among the E.E. student body that over ninety-five per cent of those students eligible to do so have become members. It is hoped that the lower classmen will show the same or even greater interest in this association.

The scope of the field of the Electrical Engineering profession is in a constant enlargening process, making it almost impossible to cover the field through the study of school texts. Here is where the organization fits in. The developments of the outside world are brought before the meetings of the Student Chapter of the Institute for discussion. A comradeship is created among the young men with like aspirations and ideals, tending to mature into deep and lasting friendships. Members who find their work in school tiring see the new path to freedom of thought in their field.

Toward the end of his course of study the student of engineering is confronted with the problem of assimilating book theory and world practice. At this time, more than ever he must be made to take courage and have the path that lies before him lighted that he may see his way. It is the aim of this organization to maintain and augment the interest of the student in his chosen field and develop in him a sufficient degree of initiative and self-confidence. To this end the A.I.E.E. is the connecting link whereby the student who has been absorbing electrical theory may be brought into direct contact with the practical engineering world.



President—Jack R. Miller

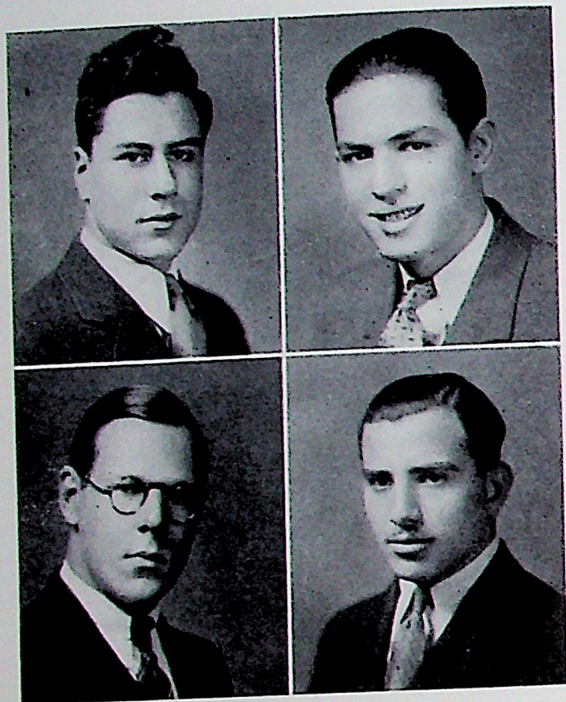
Vice-president—Rene Reimann

Secretary—Joseph F. Costa

Treasurer—William G. Slack

Counselor—A. J. B. Fairburn

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS



President—Samuel Kaplan
Vice-pres.—Joseph Gladstone
Secretary—Christian A. Wamser
Treasurer—Murray Pisetznar

This is the fifth year of the existence of the Student Chapter of the American Institute of Chemical Engineers, the organization having been formed in 1928. It is the youngest of the Student Chapters of professional engineering societies in Cooper Union. In the first years of its existence, the Chapter functioned under the guiding hand of Dr. Albert Newman, and many interesting and instructive talks on chemical engineering applications were given. Guest speakers were chosen from men who had been successful in their particular field. As the organization continued and the membership increased, the activities of the Chapter became more extensive. Each year a reception was held for the purpose of formally greet-

ing the freshmen, and getting them better acquainted with the other chemical engineering students and the faculty of the chemical engineering department. In 1931, the A.I.Ch.E. adopted the policy of awarding a prize to the chemical engineering student who had the best record in his freshman year. In 1932, the A.I.Ch. E. also began to award an annual prize for the best solution of a problem conceived by them and issued to members of the Student Chapter of the various schools.

Under the skillful guidance and leadership of Mr. Raymond J. Kunz, its faculty adviser, and Mr. Samuel Kaplan, its able president, the Chapter has gotten into full swing, and this year promises to be one of the most active in the history of the organization. One of the most noteworthy events of the year was the freshman reception held on December 21st, under the supervision of Mr. Alexander Engel. Earlier in the year, on November 27th the Chapter accepted an invitation extended to them by the New York University Chapter, and attended a joint meeting held at New York University.

ATHLETIC ASSOCIATION

The "Pioneer," the Cooper Union students' newspaper, advocated one Athletic Association for all schools of Cooper Union. Previous to 1933, there were two basketball teams, one for day and one for night. Only night school men could run on the track team and day men only could play on the baseball team, because of the teams being sponsored by the different organizations. It was thought that by combining the teams, the good material of the whole school could be used to produce winning teams, instead of the mediocre ones Cooper had had theretofore.

In January 1933, a committee, consisting of the officers of both the day A. A. and the night A. O. was formed to draw up a constitution for a combined organization.

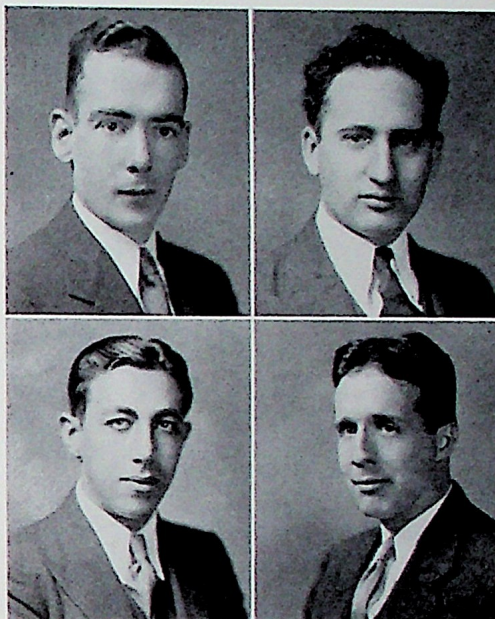
Many difficulties, at first, beset the committee. Teams did not want to relinquish their coaches, practice dates were conflicting, fees were different, constitutions were not the same, a choice of officers was difficult and a convenient meeting date and time was hard to decide. Eligibility of the team members had to be arranged.

By combining the good points of both constitutions and discarding the bad ones a satisfactory plan was evolved. Money matters were taken away from the individual teams by this plan and placed under a Finance Committee, whose duties were to sell membership tickets, receive guarantees, and to make all expenditures in an equitable manner.

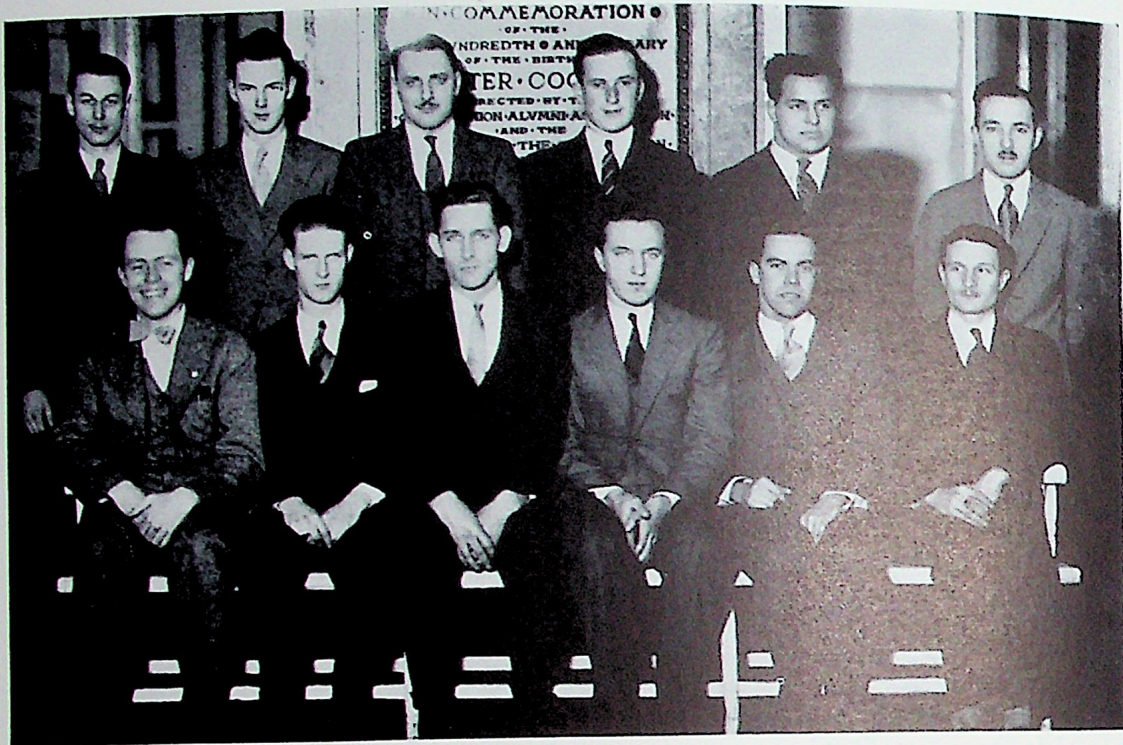
The membership fee of one dollar was decided to be a just one, because, if most of the students became members, they would receive the benefits of the gymnasium and discounts on athletic goods.

At a combined meeting the new constitution and new plan were passed by the members and the 1933-34 officers elected.

The gymnasium is now in operation, the teams are functioning properly and it is felt that it was a wise plan to combine all sports of all schools under one athletic head.



President—George O'Brien
Vice-pres.—Ralph Torop
Secretary—Paul Giovanello
Treasurer—John P. Roulett, Jr.



*Top Row—L. Eichenbaum, R. Moran, M. Goazempis, H. Albert, M. Fexas, H. Schick.
Bottom Row—J. Morrissey, J. Gill, A. J. Stubler, F. Emigholtz, W. Quick, F. Knipper.*

STUDENT COUNCIL OF THE SCHOOLS OF ENGINEERING

THE GENERAL STUDENTS' COUNCIL

President—Marcel Goazempis

Vice-pres.—Charles Mikulka

Secretary—Miss Helen Henschel

In the Fall of 1909 several Day School men succeeded in organizing the Cooper Union Students' League for the purposes of commemorating annually the birthday of Peter Cooper and the founding of Cooper Union, and of promoting sociability and goodfellowship among the students of Cooper Union. As a means toward carrying out the latter purpose, the League held at least one social function a year.

In the beginning the League presented plays, which were highly successful. However, as many of those taking part in these theatricals failed to pass their term's work, this policy was changed and professional talent was engaged. The attendance at these affairs continually increased until, in 1921, it was necessary to engage the entire ball room of the old Waldorf-Astoria. In addition to these annual affairs, social meetings were held at which the delegates themselves supplied the entertainment.

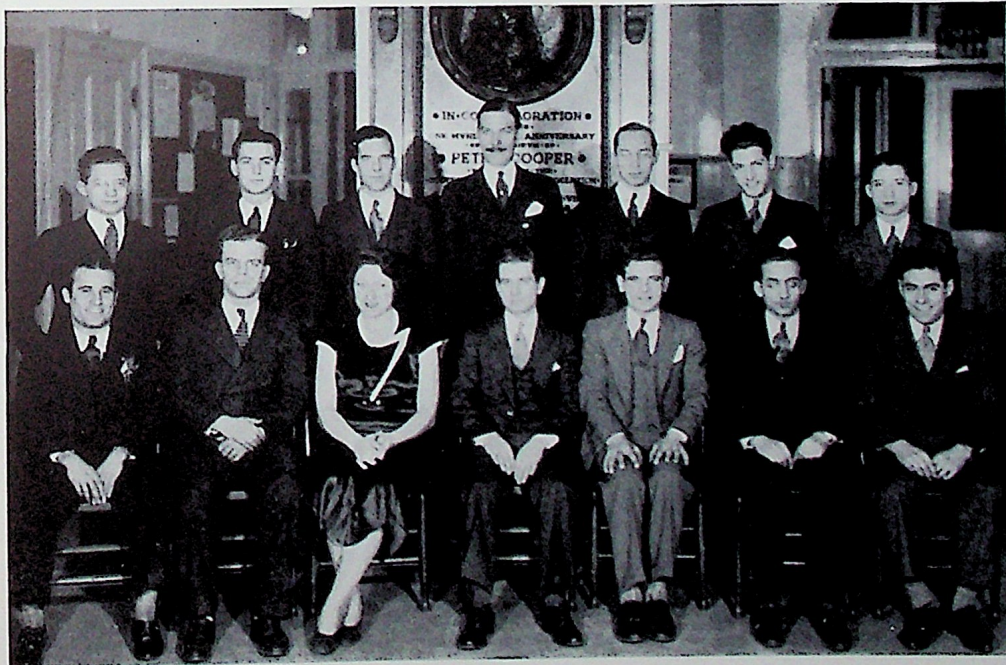
In order to carry out its initial purpose of promoting school spirit, the League founded athletics by appointing managers of teams and voting money for equipment. This work was handled for several years by a separate athletic organization but was again placed under the direct control of the League when experience had proved this to be the best method of handling athletics.

In 1920 the League appointed a committee to provide for the publication of a school newspaper and in January, 1921, the first issue of the "Cooper Pioneer" appeared. For years this newspaper, published by a standing committee of the League, kept the students informed of all activities in the school.

The Cooper Union Students League passed out of existence in the Fall of 1924 after fifteen years of successful, vigorous life when Professor F. M. Hartmann, Acting Dean, ordered it to suspend operations. He replaced it by Student Councils, each school having its own Council which, as a voting body was made up of class presidents. This system endured and is fundamentally the plan used now.

The need of a governing organization composed of members of all the Day and Night Schools of The Cooper Union has been apparent for some time to discuss and dispose of numerous items which come up during the school year and which concern the welfare of the student.

This year the General Students' Council Plan, suggested by the Faculty Board on Student Activities, was adopted.



*Top Row—S. Noble, H. Levitz, E. Goerner, M. Munzer, D. Solins, F. Lo Bue, I. Friedman.
Bottom Row—M. Lisinichia, C. Ward, R. Segall, F. Brown, E. Reif, F. Tessitore, H. Hesselson.*

STUDENT COUNCIL OF SCHOOL OF ARCHITECTURE

The organization is in the form of a senate body. It consists of four delegates selected from each of the Day and Night Engineering Schools, four delegates from the Day Art School and four delegates from the combined Night Architectural and Night Art Schools—all of whom must be class presidents, members of their particular council, and elected to represent their council.

An important item disposed of by the Council was the drawing up of a new plan in cooperation with the Faculty for reinstating the "Pioneer" which in the past had been the Cooper Union newspaper. Harold I. Albert was elected Editor-in-Chief and Mr. A. Patt was elected Assistant Editor-in-Chief and A. Patt was elected Assistant Editor-in-upper-classmen. Leopold Eichenbaum and D. W. Jackson were elected to join the Faculty in a Board of Control for the paper.

The good and necessary work the General Students' Council has done in these matters and others too numerous to mention show that an organization of this type is necessary for the proper supervision of extra-curricular activities. Though but in its first year the exceptionally good showing of the Council leads us to predict that it will become a permanent fixture at The Cooper Union.



*Top Row—B. Lewensohn, R. Rose, H. Steinberg, A. Suto, D. Rosen, C. Carroll.
Second Row—B. Kassoy, J. Grenieri, J. Wexler, E. Pomerantz, G. May, J. Shelton, W. Balaban.
Front Row—C. Carney, A. DeBenedetto, R. Leibowitz, A. Shaw, P. McQuade, L. Ciccarelli, G. Jocher, B. Sweeten.*

STUDENT COUNCIL OF NIGHT SCHOOL OF ART

MUSICAL ORGANIZATION

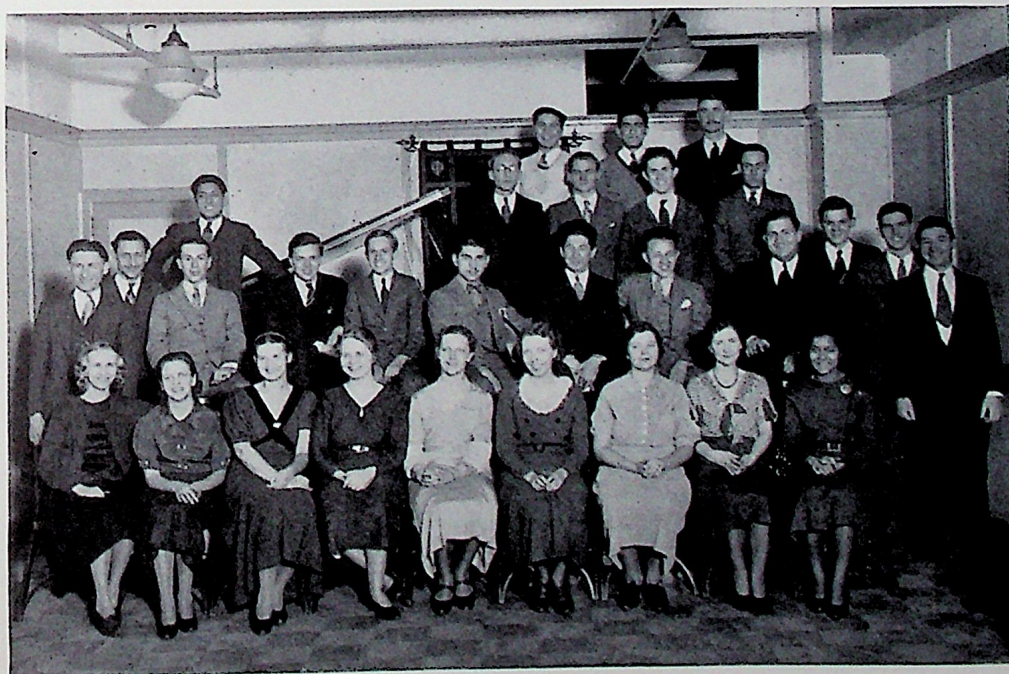
A movement for the expression of musical ability was started in Cooper Union quite a number of years ago. This did not make much headway, however, until the autumn of 1931. Then Lester Bauser, a student, with the aid of Mr. Roemmele, gathered a nucleus of twenty students who were desirous of expressing themselves in music and formed a permanent musical organization in Cooper Union.

Parallel to Bauser's movement, an attempt was made to create a Glee Club, which was finally organized through the persistent efforts of Hyman Graus. With a group of about ten Tech men and a pianist, he began to rehearse the group, until it has now become an institution, not only of a musical character, but also as a means for promoting the social life of the students.

That same year, several joint concerts were given before the student body, which were very successful. A musical organization comprising both groups, the symphony orchestra and the Glee Club, was finally organized under the faculty advisership of Mr. Roemmele.

In 1932, Joe Kushner, an enthusiast of musical syncopation, formed a jazz band. Under his leadership, the "Engineers of Rhythm," by which name they came to be known, became so highly trained, that they are now available for all types of social affairs in the school.

At the end of this past year, an administrative and governing body was formed, originated by the present leaders of the three musical groups, Boris Gouguell, President; Ed Golub, Business Manager; and Hyman Graus. Secretary-Treasurer.



MUSICAL GROUP

JUNIOR PROM COMMITTEE

General Chairman
WILLIAM S. QUICK

Entertainment Committee
Chairman
S. M. NOBLE

John Roulett, Jr.
Herman Levitz

Harold Hesselson
Harold Albert

Business Committee

Chairman
HERMAN A. FOLGNER

William P. Reuss
George Freeman

Julius Cohen
Samuel Kornbluth

SENIOR HOP COMMITTEE

Chairman
CESAR A. TOLIVAR

Vice-Chairman
ELIAS H. REIF

Secretary
FRANK TESSITORE

Treasurer
RUDOLPH DVORAK

Irving L. Kopelman
Gerald A. Rohlich
Francis H. Alexander
Anton J. Wille
Angelo De Benedetto

Hyman Fleiss
John H. Petersen
Arthur O. Ploetz
William Haratonik
Evelyn Avidan

THE NIGHT ANNUAL DANCE

Honorary Chairmen
PHILIP ANTHES
PHILIP F. BRUECK

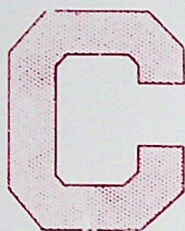
General Chairman
ARTHUR O. PLOETZ

Entertainment Committee
LOUIS PODELL, Chairman
William P. Reuss Rose Leibowitz

Business Committee
HERMAN FOLGNER, Chairman
Helen Henschel Raymond Moran
Robert Weyand Evelyn Avidan
Herman Levitz

Publicity Committee
PETER McQUADE, Chairman
William Quick Lucy Ciccarelli
Simon Ross

HONOR



AWARDS

In every successful institution there is a certain group of willing workers who give, cheerfully without any material recompense, of their time and abilities to planning and carrying out enterprises for the edification and enjoyment of all. At Cooper Union these are the lifeblood of all extra-curricular activities, yet many of them go unsung and unknown.

It was to recognize and honor this group that the Gold C Award was brought into being. It at once became an honor and an inspiration for further activities. It is a synonym of service, the highest honor conferred upon a student by the student body.

To honor those deserving is only fitting; a noble deed.

Second Award

SILVER C

William P. Reuss

First Award

GOLD C

Harold I. Albert
Evelyn Avidan
Lucy Ciccarelli
James E. Coffey
Herman A. Folgner
Herman Franke
Marcel G. Goazempis
Francis E. Knipper
Irving L. Kopelman
Herman B. Levitz

Rose Leibowitz
S. Martin Noble
John H. Petersen
William S. Quick
Elias A. Reif
Gerard A. Rohlich
John P. Roulett, Jr.
Frank A. Tracey
Robert Weyand
Donald Wilcox

ENDOWMENTS

Up to the time of the death of Peter Cooper very little money, besides the \$200,000 given by the Founder himself, had been contributed to the endowment fund of the Union. However, at the death of William Cooper, the younger brother of Peter, in 1897, a large sum of money was willed to the institution.

By successive deaths in the family, large sums of money were added to the endowment of the Union under the name of the Edward Cooper Foundation. However, despite this great contribution—amounting to \$340,000—this endowment income was insufficient to permit the removal of all tenants from the building.

An appeal to the public for contributions, resulted in a donation of \$300,000 from Andrew Carnegie. Later gifts from this steel magnate were equally generous.

A transfer of property in 1903 by Peter Cooper's descendants to the Union, increased the Endowment Fund of the Union considerably.

Fraternities

ROSTER OF FRATERNITIES

Φ Σ Ω

PHI SIGMA OMEGA

Ω Δ Φ

OMEGA DELTA PHI

Λ Σ Κ

LAMBDA SIGMA KAPPA

Α Μ Σ

ALPHA MU SIGMA

Σ Α Π

SIGMA ALPHA PI

FRATERNALISM

. . . . I do then with my friends as I do with my books. I would have them where I can find them, but I seldom use them. We must have society on our own terms, and admit or exclude it on the slightest cause. I cannot afford to speak much with my friend. If he is great, he makes me so great that I cannot descend to converse. In the great days presentments hover before me in the firmament. I ought then to dedicate myself to them. I go in that I may seize them; I go out that I may seize them. I fear only that I may lose them receding into the sky in which now they are only a patch of brighter light. Then, though I prize my friends, I cannot afford to talk with them and study their visions, lest I lose my own. It would indeed give me a certain household joy to quit this lofty seeking, this spiritual astronomy, or search of stars, and come down to warm sympathies with you; but then I know well I shall mourn always the vanishing of my mighty Gods. It is true, next week I shall have languid moods when I can well afford to occupy myself with foreign objects; then I shall regret the lost literature of your mind, and wish you were by my side again

So I will owe to my friends this evanescent intercourse. I will receive from them, not what they have, but what they are. They shall give me that which properly they cannot give, but which emanates from them. But they shall not hold me by any relations less subtile and pure. We will meet as though we met not, and part as though we parted not

It is thought a disgrace to love unrequited. But the great will see that true love cannot be unrequited. True love transcends the unworthy object, and dwells and broods on the eternal, and when the poor interposed mask crumbles, it is not sad, but feels rid of so much earth, and feels its independency the surer. Yet these things may hardly be said without a sort of treachery to the relation. The essence of friendship is entireness, a total magnanimity and trust. It must not surmise or provide for infirmity. It treats its object as a God that it may deify both.

RALPH WALDO EMERSON

PHI SIGMA OMEGA



Grand Master—Francis H. Alexander
Deputy Grand Master—William P. Reuss
Recorder—Cesar A. Tolivar
Exchequer—Raymond Kilmer

Phi Sigma Omega Fraternity owes its existence primarily to the Cable Board of 1926. In March of that year several students engaged in the preparation of this annual yearbook, were living in a room just north of the College. These men were very much interested in fraternities but hesitated on being pledged to any of the existing fraternities due to the out-door initiations which were held. They formulated the idea to organize a new fraternity, based on Christian requirements and fraternal brotherhood. Immediately a group of men formulated themselves into one. A ritual was conceived and gradually a fraternal spirit developed which to the present day is predominant.

The fraternity was incorporated by the State of New York on January 8th, 1927 and later certificates were issued by the Library of Congress, copy-writing the seal of the Fraternity. A year later Beta Chapter was instituted at Newark College of Engineering, and four years later Gamma Chapter at New York University. This fraternity has advanced until today membership is only obtainable after the most rigid examination of the pledgee's character and morals. In this way the most desirable pledgees are picked from the long waiting list desiring to become members.

That our fraters are chosen from the highest type of student in the school is shown by the number of varied important positions held by our brothers, in extra-curricula activities. However, scholastic attainment is our prime purpose. The acquirement of these heights by our brothers was exemplified when one frater of Phi Sigma Omega was chosen by our faculty as valedictorian of his class and another frater was awarded the Senior Prize at the commencement exercises last June.

Thus, after but eight years, since its conception, Phi Sigma Omega has become the largest and most active fraternity in the Cooper Union.

FRATRES IN FACULTATE

Edward A. Miller
William T. Peterson

Austin Purves, Jr.
Charles O. Roth, Jr.
Christian Weaver

Joseph J. Tanzola
Miles H. Van Buren

FRATRES IN COLLEGIO

Francis H. Alexander
John F. Bateman
Stanley Berg
James J. Burke
John V. Cahill
Adams Callen
Elbert Jaudon
James E. Coffey
Raymond E. Duguid
Herman Franke
Louis Gartelmann
James J. Gill
Marcel Goazempis
John Hannon
Emmet G. Happ
Jack Harding
Alfred Hasselbach

Charles Hauck
Joseph Humphreys
Raymond Kilmer
Francis E. Knipper
Michael J. LaForte
Andrew R. Levada
Arthur Lipman
John B. Mayer
Charles Miller
Joseph Michaelson
Sam B. MacWhorter
James J. McAleer
James J. McManamy
Anthony J. Nesti
George O'Brien
Joseph O'Brien
Joseph E. Owens

Charles Politi
Harold E. Prucha
Rene Reimann
William P. Reuss
Gilbert E. Ribreau
John P. Roulett, Jr.
Ralph Sandor
Walter Simons
William A. Smythe
Robert Spice
Arthur Stolle
Jesse B. Tegethoff
Joseph Tesoriero
Cesar Tolivar
Frank A. Tracey
Peter F. Wield
Anton Wille



FRATRES OF PHI SIGMA OMEGA

OMEGA DELTA PHI



President—Jeremiah A. Musilek
Exec. Pres.—Edwin S. Tweedy
Secretary—Frederick C. Stein
Treasurer—Herman A. Folgner

On March 21, 1903 a body of students desirous of fostering the intimate friendship and associations formed while attending Cooper Union, organized the Cooper Union Chapter of Omega Delta Phi Fraternity.

The brotherhood took root and flourished to such an extent that on June 6, 1908 the founder and senior members withdrew from the active work of the Chapter and formed the Alumni Association so as to devote their time and energy to incorporation and expansion. On January 3, 1913, the efforts of the founders again became manifest and the brotherhood was incorporated under the Laws of the State of New York as Omega Delta Phi Fraternity, Inc.

This stimulated further interest and on February 4, 1915, it having become apparent that the fraternity would shortly be enlarged by the admission of other Chapters, Omega Delta Phi Fraternity, Inc. granted the Cooper Union Chapter of Omega Delta Phi Fraternity, Inc. a charter as Alpha Chapter.

Thus was formed the first active organized group of students in the Cooper Union, who have always held the ideals, purposes and standards of the Founder foremost in their actions.

The efforts of the parent body of the fraternity further carried on the expansion program by granting a charter on January 3, 1915 to a group of upstanding students of Brooklyn Polytechnic Institute for the formation of the Beta Chapter of Omega Delta Phi, Inc.

The purposes of the founders during the year 1925 were further motivated by the creation of Gamma Chapter of New York University, and during 1928 of Delta Chapter at Cooper Union Institute of Technology.

Hence, from a small group of true Cooper Union students, some of whom are now prominent members of the Faculty, a brotherhood was created, whose scope has ever increased, so that today it is outstanding and conspicuous among other similar organizations for its upstanding and noble purposes.

The members of Omega Delta Phi have always been known as men of character, respected by fellow students and Professors, have always been leaders in scholastic and extra curricular activities, and who have further brought glory to their fraternity and Alma Mater by their outstanding activities in the Engineering profession.

ALPHA CHAPTER

Fratres in Facultate

Prof. Henry C. Enders
Prof. Karl Hauptman
Lester A. Kenworthy

C. George Krueger
Raymond Kunz
Otto G. Puller

Fratres in Collegio

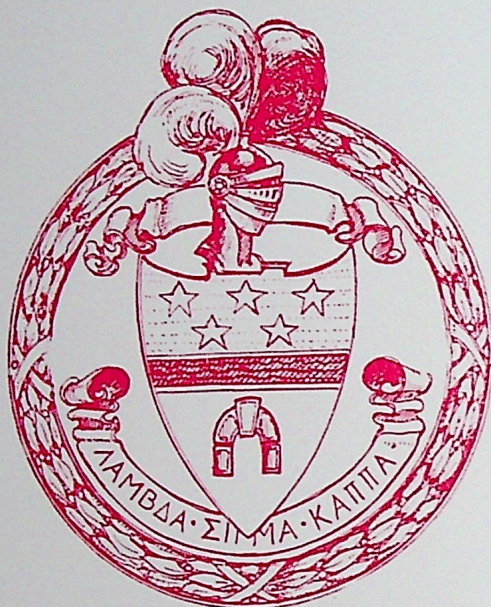
George Ford Ackert
Frank J. Aussenhofer
Arthur W. Burke
Arthur George Coffin
Joseph F. Costa
Fred Emigholz
Herman A. Folgner
Charles Gorman
John O. Gumbrecht
William Haratonick
Walter C. Kluz
George M. Kovacsevics
Joseph Lovas
Leo T. McGuire
J. McNerney

Raymond F. Moran
Jack Morrissey
Fred G. Muhlsteff
Ildefonso G. Orellana
John H. Petersen
Arthur O. Ploetz
William J. Pollert
Rosario Previti
Walter Rowland
Herman L. Schick
John Lawrence Sherry
T. Edward Thorsen
Edgar Watson
Stanley J. Zawadowicz



FRATRES OF OMEGA DELTA PHI

LAMBDA SIGMA KAPPA



The Lambda Sigma Kappa Fraternity consists of two chapters: Alpha, organized in 1904 by the Engineers of the Night School and the Institute of Technology, and Beta, organized in 1930 by the Architects of the Night School. Both chapters are chartered by the State.

The purposes of this fraternity are to promote sociability and good fellowship among its members and to endeavor to place Cooper Union in the scholastic, athletic and social position it deserves providing that side of college life so necessary to good scholarship.

The L. S. K. house is located at 11 St. Mark's Place, where the comforts of a real "home" are enjoyed.

To prove that fraternalism promotes scholarship reference is made to our architect members who last year, at the judging of the problems, won two first prizes, one second prize and five honorable mentions.

Each year one formal affair is held, usually a dinner and dance. It is the outstanding social affair of L. S. K. and has served to weld the brothers in close, lasting friendship.

FRATRES IN FACULTATE

Blandford A. Alger
Warren G. Findley

Harold W. Merritt
James P. O'Donnell

Herbert F. Roemmele
Emanuel A. Salma

FRATRES IN COLLEGIO

Hugo Di Giovanni
Emanuel A. Drago
V. L. Garrison
D. Wirth Jackson

ALPHA
Sidney Kleban
John J. Lanigan
George C. Neuschafer
Charles Wolf

Alexander Rapisarda
George Ratner
John S. Stepsis

Philip S. Anthes
Bertram J. Bertolamy
George Brown
Frank Broz
Albert J. Clermont, Jr.
Irving Kopelman

BETA
Herman Levitz
Frank Lo Bue
John Lorenc
Joseph Marraccino
Harry Neidig

John P. Nevins
Alvin Pomerantz
Carroll Saia
Frank Spinetta
George Weinpel
Felix Wielonski

ALPHA MU SIGMA

ALPHA	Cooper Union
BETA	College of the City of New York
GAMMA	Polytechnic Inst. of Brooklyn
DELTA	Mass. Inst. of Technology
EPSILON	Columbia University
ZETA	New York University
ETA	Harvard University
THETA	Bellevue Medical College
IOTA	Yale University
KAPPA	Boston University
LAMBDA	University of Pennsylvania
MU	University of Maryland
NU	University of Virginia
XI	Union College
OMICRON	University of South Carolina
PI	Long Island University
RHO	University of Alabama
SIGMA	Lewis Institute of Chicago
TAU	George Washington University
ALUMNI	New York City
ALUMNI	Boston



ALPHA CHAPTER

Prior—O. Leonard Fischer

Vice Prior—Emanuel M. Lindheimer

Exchequer—Ralph Torop

Scribe—Herman H. Weinstein

FRATRES IN COLLEGIO

Charles S. Begelman
 Arthur Blankstein
 Milton D. Chrisman
 Samuel J. Cohen
 O. Leonard Fischer
 Joseph Gladstone
 Samuel S. Goldstein
 Paul Hirschman
 Karl Itkin
 Arthur Kahlenberg

Bernhard Last
 Emanuel M. Lindheimer
 Werner E. Lindheimer
 Nathan Lipowitz
 Hyman Milbert
 Abraham Q. Niver
 Murray Pisetzer
 Frederick Shapiro
 Ralph Torop
 Herman H. Weinstein

Irving Wenz



SIGMA ALPHA PI

Founded 1904

FRATRES IN FACULTATE

William E. Bossert

Prof. James Coull

Werner O. Entenmann

Abraham J. B. Fairburn

Frank R. Forrester

Henry B. Hope

Carlyle W. Miller

Dr. Albert B. Newman

Henry J. O'Henman

Prof. William J. Pickett

Prof. Norman L. Towle

Carl H. Young

FRATRES IN COLLEGIO

James Constable

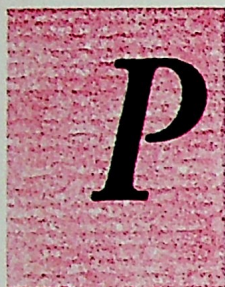
Helmar O. Jensen

Kermit J. Kalna

John W. Kinkel

Athletics

PETER COOPER, PUBLIC SERVANT



PETER COOPER had but one aim in holding office—that he might be a servant of the people; never did he care for personal glory or financial gain. He was eager to improve the conditions of his native city, his state and his country by institutional and organized methods.

The first office that Peter Cooper held was that of assistant alderman for three years, which was followed by a one year aldermanic term. He represented the then 12th Ward of Manhattan. Upon his appointment to the Water Committee, he infused a spirit of new vigor into the lagging group. Through his efforts, investigation resulted in the institution and completion of the Croton system in use today.

We, in 1934, take for granted our police and fire protection. In Peter Cooper's time, these were much less worthy and effective departments. Cooper's campaign for the reform of these departments laid the foundation for our modern system of police and fire protection.

Peter Cooper's interests extended to almost every phase of community activity. He was unalterably opposed to state support of sectarian schools, and he led the fight against the granting of public funds to them. He served on the board of education from 1853 to 1855, resigning only to undertake the great plan of his life work, The Cooper Union.

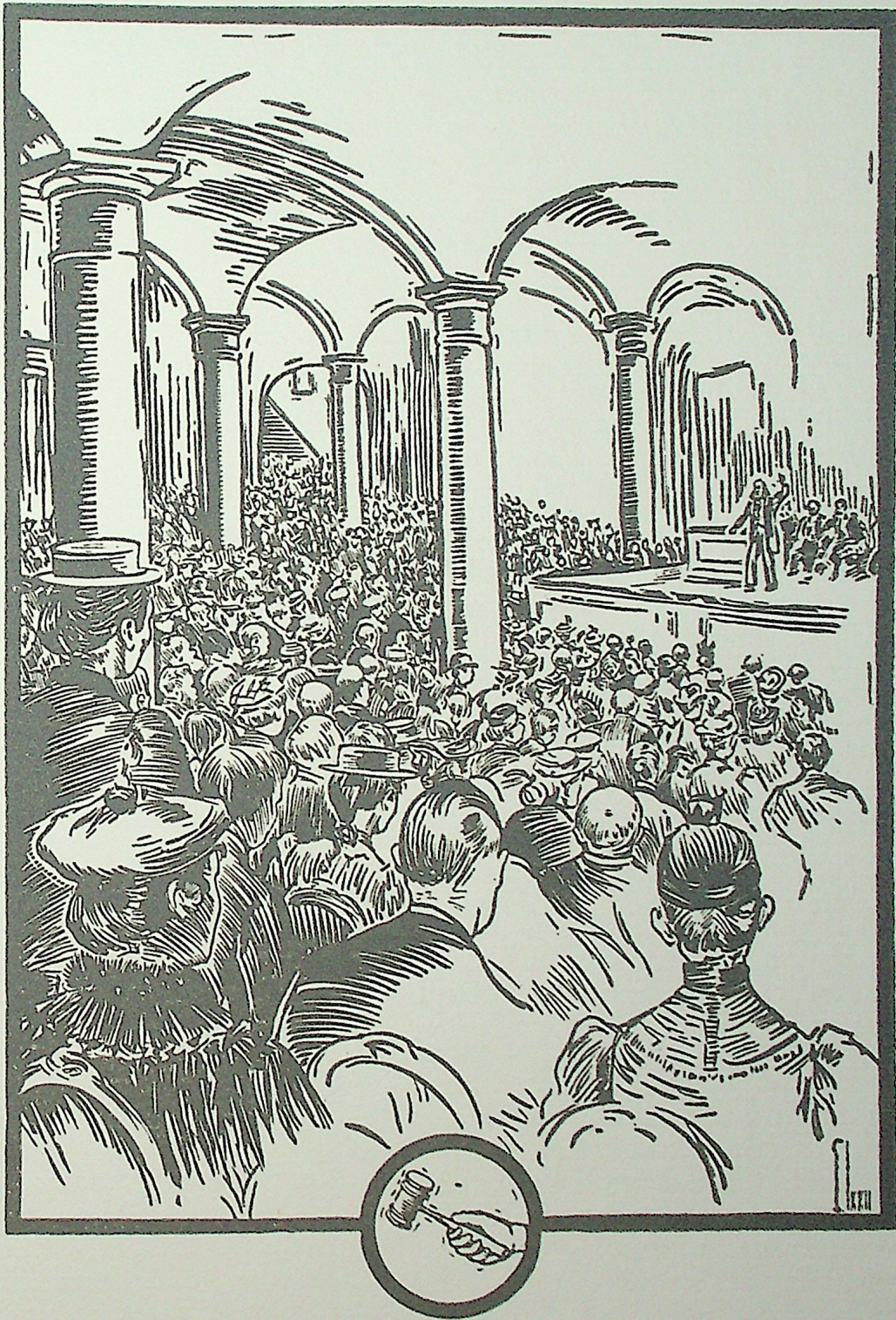
Cooper's career in politics was not long confined to communal and city activities. His interest in national politics had two great phases—his work during the Civil War, and his importance in after years in matters of government finance. During the panic of 1859 he was consistently consulted by business men and statesmen and his advice was gospel.

Peter Cooper's one guiding principle in the matter of slavery was his contention that the Union must be preserved at any cost. It was only his seventy years of age which prevented him from fighting for the country himself.

Early in 1876 Peter Cooper was urged on all sides to be a candidate for the presidency of the United States on the Greenback Party. It was only because he felt it an opportunity to bring home the principles of his party to the people of the nation that he finally accepted the nomination. As he expected, he was not elected.

The principle that Cooper advocated in his campaign for the presidency was the convertibility of currency. He believed that currency should have no intrinsic value, should not be able to be exported as goods and should, therefore, be immune to the fluctuations of foreign markets. He also favored a judicious tariff for revenue.

Peter Cooper was past 85 years of age when he ran for President. To the very end of his long career he fought always for honesty in politics, for laws for the good of the people and the betterment of the Union. He can hardly be called politician; he was truly a statesman and a public servant.





ATHLETIC



AWARDS

BASKETBALL — 1934

Major "C"

S. Cohen, Mgr.

M. Block	R. Leon
L. Eichenbaum	C. Mikulka
J. Friedman	J. Mofenson
S. Frisch	J. P. Roulett
A. Johanny	G. Scherb

Minor "C"

F. Shapiro, Asst. Mgr.

P. Giovanello	P. Moskowitz
M. Lipschitz	J. Racz
J. Mattich	S. Schoor

TENNIS — 1933

Major "C"

P. Anthes	J. Christensen
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Minor "C"

J. Lindner	J. Scanlon
L. Ulshen	

BASEBALL — 1933

Major "C"

F. Balacek	J. P. Roulett
P. Giovanello	R. Pollack
W. Klein	J. Ruzicka
C. La Greco	E. Ryan
H. Monteferrante	E. Sternlieb
E. Strollo	

Minor "C"

J. Friedman	H. Suezholz
F. Shapiro	R. Vreeland

THE GYMNASIUM

The start of the scholastic year in September, 1933, was also the dawn of a new era in Cooper Union athletics. The first departure from the old order was the realization of the dreams of countless Cooper Union athletically inclined students. This was the securing of a gymnasium and swimming pool for the exclusive use of the members.

In the Spring of 1933, the Alumni was approached on the idea of providing athletic facilities for the student body, and they immediately became enthused at the possibility of the project. A committee was appointed consisting of Mr. F. Caiola, chairman and Messrs. A. Sparr, L. Fideil, C. Bussow, F. Spitaleri, C. Schroeder and A. Wohlgemuth. They immediately went to work, and after a great deal of scouting around, finally decided on the "Christodora House" an endowed institution. There the committee secured the use of the ultra-modern swimming pool and gymnasium for three periods a week during the scholastic year 1933-34.

The swimming pool is of the latest design, beautifully tiled with the most modern sanitation facilities. Well-supervised and cared for, the pool has been an endless source of health-giving recreation to many sport-starved Cooper Union students. The gymnasium, though somewhat small for the totally unexpected regular turn-out, is also equipped for almost every kind of indoor sport. Basketball was usually the first choice of the Cooperites, but many others devoted themselves to wrestling, boxing, gymnastics, handball, and the punching-bag. Indoor baseball was also enjoyed by some toward the close of the year. All these facilities and provisions had previously been practically unheard of, as far as the average Cooper Union student was concerned. The Christodora House will long be remembered by many a Cooper Union student not only for the vast physical advantages derived therefrom but also for the jolly and fraternal social contact which he made with fellow students, whom he otherwise would never have been able to meet and know.

For the nominal sum of one dollar, an A.A. member was entitled to the use and privileges of the above-named facilities, and was entitled to compete on the various teams, fostered by the Athletic Association.

The Alumni, who provided the money for this philanthropic endeavor and the committee through whose painstaking efforts the plan was carried out, have the sincere gratitude and appreciation of the officers of the Cooper Union Athletic Association, the student members of the association, the faculty and Cooper Union as a whole. The only wish expressed at the close of this eventful year is that the Alumni will be able to carry on the great work which they have started and which is so closely akin to Peter Cooper's ideals and teachings. Again we thank you.

TENNIS

The tennis team for the past few years has been Cooper Union's outstanding athletic team, but this year old man hard-luck finally caught up with the racquet-wielders. Out of a schedule of six games Cooper was victorious in only one.

Sixteen aspirants answered the first call for candidates, including some veterans from the previous outstanding team. These were Jim Christensen, captain who has been undefeated in three years of first singles play for Cooper Union; Phil S. Anthes, another outstanding and dependable performer; Gene Kelly, manager; John Scanlon, assistant manager; and Fred Muhlsteff.

The loss of the manager in mid-season and the ensuing confusion, resulting in misinformation, caused the non-appearance of star players for several games. Rain washed out many practice sessions and also contributed greatly toward some wholly unexpected defeats.

After losing the first two matches, to Brooklyn College and N. Y. U. School of Education, Cooper succeeded in snapping out of their newly acquired losing streak by downing John Marshall by the close score of 3-2. Dependable Jim Christensen won the first singles match, and the Maroon and Gold succeeded in winning both doubles matches with Anthes and Christensen combining in the first, and Ulshen and Lindner forming the winning combination in the second.

Cooper Union's fourth match proved to be a veritable night-mare with Seth Low College running rough-shod over our boys by the score of 6-0.

Although defeated in the next match Cooper Union heartily enjoyed the contest for our host was Moravian College, Bethlehem, Pa. Though the score was 5-2 against Cooper, the boys had a great trip and were well entertained.

At the last minute our joust with Upsala was cancelled and the Cooper racqueteers were forced to mark time till the following Saturday when they were upset by Montclair State Teachers. The score was again 5-2 and the same men were again victorious in their specialties for Cooper Union.

And so another tennis season was completed by the Cooper Union netsters. Besides his undefeated first singles record, Christensen combined with Anthes to capture twelve out of fourteen doubles contests in three years of campaigning. Cooper will long remember this combination. The remainder of the squad, whose performances were praiseworthy, were J. Scanlon, L. Ulshen, J. Lindner, F. Muhlsteff, D. Kleban, J. Schneiderman, B. Roman and R. Stern.

Only two men are lost for the 1934 squad and prospects are exceedingly bright for a winning season. L. Ulshen is the manager and expects plenty of cooperation from this year's squad.

BASEBALL

Winning the majority of their games was not the only reason for the baseball team to be proclaimed Cooper Union's best athletic team for the past year. Overcoming the most difficult obstacles that any Cooper Union team ever encountered, the baseball nine turned in a few performances that would do credit to any major league team. Out of a schedule of seven games Cooper won four, including victories over Brooklyn College, Wagner College, and Webb Institute.

A snappy group of candidates greeted Manager La Greco when the first work-out was held, but it was soon evident that plenty of practice would be required to turn out a capable nine. Practice was held under the usual difficulties at Central Park twice weekly until the day of the opening game.

Steven's Institute of Technology was our first opponent. On a bleak and windy day after an insufficient warm up on Steven's excellent diamond, the game was started. In the first inning Cooper was held scoreless while Stevens scored five runs, mostly on errors through Cooper's cold and shaky cohorts. After this bad beginning, the contest developed into a real ball-game. The second inning was scoreless. In the third inning Roulett, left-fielder for Cooper, opened with a line drive to center field, stole second and scored on Balacek's hard-hit single down the third base-line. This made the score 5-1, and that was the score at the end of the game. After that disastrous first inning, Ryan pitched scoreless ball, behind good support.

Brooklyn College was met in the second game and in a free-scoring contest, due in part to the poor condition of the field, Vreeland pitched Cooper Union to a 13-8 victory. Some timely slugging by Ruzicka, Strollo and Monteferrante featured for the Maroon and Gold.

Our perennial rival, Wagner College of Staten Island was met the following week and due to some erratic fielding and pitching on the part of the Astor Place nine, Wagner was victorious. Two days later Webb Institute was met and when the game was over Cooper was ahead by the score of 9-2. Good pitching and some lusty clouting by the Maroon and Gold out-field were the outstanding features.

The next contest was the game which will go down in the annals of Cooper Union athletic history. Our old rival Wagner was met in a return game and Cooper obtained satisfaction for the previous set-back. The Cooper Union keystone combination, La Greco and Pollack, who had contributed principally errors in the previous encounter with Wagner, turned in a diamond classic. This pair of performers completed between them twenty-three assists and put-outs without an error. Such playing was not to be denied and the inspired Astor Place boys, behind the superb pitching of Ryan, came back to conquer the Staten Islanders.

The final encounter was scheduled with Rhode Island State. The Cooper nine started for Kingston, R. I. by car in a veritable downpour but after a few hours struggle against the elements were forced to cancel the game and turn back for home.

This year's prospects were better than ever, though due to graduation, the loss of several players would have been keenly felt. La Greco, Pollack, Balacek and Sternlieb are gone, via the diploma route, and their positions would have been hard to fill. Fred Shapiro was appointed manager and arranged a schedule of fifteen games, but baseball was not included in the list of recognized sports in the constitution of the new combined athletic association.

RIFLE

The Rifle Club is now in its eighth year of existence at Cooper Union. The club serves mainly as a squad from which the team members are picked. This year's team is affiliated with the National Rifle Association and a schedule of eight matches has been arranged with the following metropolitan colleges, Steven's Institute of Technology, Brooklyn College, Brooklyn Polytechnic Institute, Columbia, City College of New York, New York University, and St. John's.

The team is also a member of the Intercollegiate Rifle Association and enjoys the manifold advantages of this group. The United States Government supplies all the necessary ammunition for practices and matches. A schedule is automatically arranged and all expenses for the conduction of matches are met by the I.C.R.A.A. With the aid of the Athletic Association the membership dues for the National Rifle Association and the Intercollegiate Rifle Association have been met and a good season is in progress.

Out of the one hundred and ten students who signed up, about forty were able to go regularly to practice at a mid-town armory, and of these a team of ten have been tentatively picked. The nimrods who have shown the best markmanship to date are J. Kinkel, F. Korn, C. Mikulka, J. Peirano, B. Schenker, L. Shanahan, W. Stevens, J. Weber, R. Wylie and G. Yokota.

Rivalry is keen amongst the club members and the names of the five highest of the ten men picked each week for the team are constantly changing so that by the time the first match is held a formidable team will be on hand to insure victory.

BASKETBALL

The jinx that has followed Cooper Union in all our sports maintained its grip during the 1933-34 season on the basketball team. Out of the fifteen games played, the quintet won but one game. They went down fighting, however, and were without doubt the gamest group of men that ever represented Cooper on the court.

With graduation and ineligibility taking their inevitable toll, the problem of molding a team from what remained of the Tech and Night teams was by no means an easy one. However, Coach George Faltings, veteran coach, managed to fuse the few remaining veterans and the galaxy of freshman talent into a smooth-working and capable quintet, with the do-or-die spirit.

The schedule opened on December 6th, when a team whose confidence more than made up for its lack of experience met a Brooklyn Poly five at the Odd Fellows Hall in Brooklyn. When, at the half, the Maroon and Gold was leading Poly by one point, it looked as if we had Old Man Jinx out for the count; but the rest between halves proved fatal, and our opponents barely nosed us out of the game by a 22 to 19 score.

Not in the least discouraged, the team traveled to the Bronx the following week with the intention of providing front page news for the tabloids by beating Fordham. Things turned out otherwise, and the team returned to Astor Place at the short end of a 37-9 score.

The succeeding weeks were like nightmares. We constantly flirted with success, while Old Man Jinx leaned back on his haunches and roared with laughter. In order John Marshall, Stevens Tech, Long Island University, Rhode Island State College, Upsala, Seth Low, Cathedral, Dana, Rider, and Wagner sent us tumbling to defeat just when we thought we had our hands on victory at last.

Finally, on February 12th, Founder's Day, probably in honor of the occasion, the team came through. After trailing during the first half of the game, the five came back to thoroughly outplay Jersey City State Normal and to win by 28 to 17.

But that was the only holiday we had, and we dropped the remaining games of the season to Savage and to Brooklyn Pharmacy, but not until we had fought both of these teams to a standstill.

The nucleus of the team was their spirited captain, "Chick" Friedman, "Pat" Roulett, "Stretch" Mofsenon, "Charlie" Mikulka, and "Sol" Frisch, veterans from the previous season. The freshmen newcomers who added backbone to the team were "Mike" Block, "Arno" Johanny, and "Gus" Scherb. Later in the season a berth was provided for "Bob" Leon, who had made a good showing in junior varsity games. Sam Cohen was manager.

The 1933-34 season was also an unfortunate one for the junior varsity team, which played seven games and won only one. Early in the season the

J. V.'s took the John Marshall second team into camp, but were in turn defeated by Jersey City Prep, Stevens Tech J. V.'s Highland Park Y.M.C.A., C.C.N.Y. Evening Varsity, Seth Low J. V.'s, and the Kips Bay Boys Club.

The junior varsity was composed of "Lippy" Lipschitz, captain, Sam Shoor, "Bob" Leon, Paul Giovanello, "Shorty" Moscowitz, "Joe" Racz, and "Leo" Eichenbaum, Fred Shapiro was manager.

One of the highlights of the season was the Tech interclass tournament which was sponsored by the Athletic Association. Numerals were awarded to the victors, the Class of '35, which won six of the seven games played.

The tournament was divided into two parts, one of which was played in November and December of 1933 and the other in February of 1934. Each part was independent of the other. Capturing all three of the games played, the Junior Class won the first division. However, in the second round, after winning the first two games, they succumbed to a last minute rally of the sophomores and lost the division to the second year men, who had not yet lost a game.

In the play-off for the Tech championship, however, the Junior Class trimmed their opponents 35 to 20 and were declared the winners of the tournament. The Class of '35 was represented by Sol Dunsay, Captain, Murray Pisetznier, Herman Weinstein, Sam Shoor, Joshua Ross, Charles McGuinness, and Frederick Shapiro.



Standing—F. Shapiro, Ass't Mgr.; J. Racz, A. Johanny, J. Mofsenon, R. Leon, L. Eichenbaum, S. Cohen, Mgr.

Sitting—G. Scherb, C. Mikulka, P. Roulett, S. Frisch, M. Block.

FOOTBALL

In the constitution of the Cooper Union Athletic Association, football, during last year, was not included in the list of recognized sports.

Consequently, all previously planned games with opposing colleges were cancelled, and those colleges were informed that Cooper Union had no official representative team. However, permission was granted to the group already formed, as a team, to complete its schedule, if they played as a "Cooper Union Students" team.

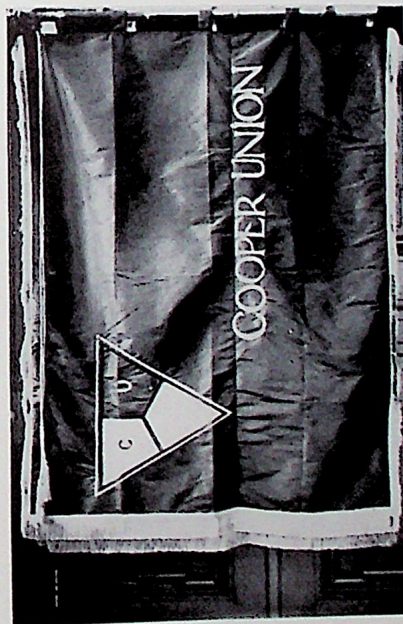
The above decision was made in April 1933. In February 1933 the call for candidates to sign up for football had been posted on the Bulletin Board. The response was gratifying since sixty-three students signified their intention of turning out. A coach, namely Paul B. Skidmore, formerly a backfield star and teammate of Clark Ingraham of Navy fame, was engaged. For the team, the coach had inherited a few of last year's men, but the majority of the squad was made up of new faces, some of whom had never handled a football. The veterans, who had responded to the call were Bob Anthony, captain-elect and star tackle; Anastasia, manager and ex-captain who had shone as quarterback; Friedman, iron-man center, who had played almost full-time in every 1932 game; Weinpel and Aruck, a pair of fine ends; Dejerenis, stellar half-back who made the longest run of the 1932 season; Philip, fullback; Inman, guard; and De Loparra, end. In addition the coach had as newcomers De Angelis, Sellig, Bobat, Kubista, Kovacsevics, and Schenker, backs; Gaber, center; Ostunis, Stokien, Nagoshiner and Kivo, tackles; Keleman, Harris and Broad, guards; and Giovanello, Mikulka and Judd, ends.

Skull practice was immediately started; the squad having black-board drill, once a week from 6:00 to 7:00 p.m. in room 23. The attendance at each meeting was encouraging, and these get-to-gethers lasted until May when exams forced a time out. In the middle of June, outdoor practice was started, continuing from 6:00 p.m. to darkness, three times a week. These workouts continued throughout the summer, and when the time approached for the first game with Connecticut State, the team was in fine shape and "raring to go." Although the outcome of this game was a score of 19-6 in favor of Connecticut, the scoreless record of 1932 had been broken. The next game proved to be the climax of the season. Cooper's opponent was its traditional gridiron rival, New York Aggies. A touchdown was made and it proved to be the winning and only score of the day. Never did a Cooper team fight so hard to protect a lead as the Maroon and Gold did that day.

and the victory was ranked as the major upset of the afternoon. This hard-won contest marked the first victory in many years for a Cooper Union eleven. The irony of it was that the eleven had no official status.

However the papers reported the game as having been played by "Cooper Union" instead of "Cooper Union Students" team, which was contrary to the agreement made previously by the faculty and the team. This brought about a week's suspension for the squad and the final disruption of the team.

Thus the success of the newly formed team was short-lived, but nevertheless Cooper Union was proud of its good results after each one of their two games.



A POEM BY JOAQUIN MILLER

(Written on learning of the death of Peter Cooper)

Give honor and love forevermore
To this great man gone to rest;
Peace on the dim Plutonian shore,
Rest in the land of the blest.

I reckon him greater than any man
That ever drew sword in war;
I reckon him nobler than king or khan,
Braver and better by far.

And wisest he in this whole wide land
Of hoarding until bent and gray;
For all you can hold in your cold dead hand
Is what you have given away.

So whether to wander the stars or to rest
Forever hushed and dumb,
He gave with a zest and he gave his best,
And deserves the best to come.

Features

INTIMATE GLIMPSES OF PETER COOPER

Today, very few people are fortunate to have reminiscences of personal association with our Founder, Peter Cooper. Mr. Victor G. Bloede of the class of 1867, the oldest living graduate of our college, is one of these auspicious persons who can retell the inestimable privilege of personal acquaintance with the Founder. Mr. Bloede, now in his eighty-fifth year, has honored us with a few of his treasured memories.

"The first time I saw Mr. Cooper was in 1862 or 1863 at a great Anti-Slavery Mass Meeting held in our dear old hall of wonderful memories. Even at that time he was a very venerable and impressive figure, like one of the patriarchs of old. On the stage that night was a wonderful assembly of people, Peter Cooper, Horace Greeley, Henry Ward Beecher, William Lloyd Garrison, Wendell Phillips, the at that time very prominent journalist, Theodore Tilton, and a great many other famous people, whose names I do not now recall; and it was one of the most remarkable mass meetings ever held in any country. This meeting, as I have said, gave me the first glimpse of Peter Cooper whose Institute and example was destined to play so great a part in my subsequent life and labors. It was in 1865 and part of 1866 that I had the wonderful privilege of coming into closer and quite frequent personal contact with him and learning something about his life, character and ideals from his own lips.

"During 1863 or 1864 I was getting my primary initiation in the study of chemistry by attending lectures being given by Professor Charles Stone at the old Brooklyn Institute. Later Dr. Stone accepted the Professorship of Chemistry at the Cooper Union and upon his advice I joined the classes there and became his pupil, and to some extent his protege, as he made me his assistant in the laboratory, from which post I was subsequently promoted, through my eminent services to science, which consisted the first year chiefly in dish, bottle and sink washing, and dirty work in general, but which nevertheless, had all the fascination of the Arabian Nights for me. Thus, my connection with the Cooper Union dates back nearly seventy years as I entered the classes in 1865 and graduated in 1867. That means that I had the inestimable privilege of personal acquaintance with the great founder himself, as well as his associates, Mr. Abram S. Hewitt and others connected with the early history of The Cooper Union.

"I lived with my parents in Brooklyn, perhaps five or six miles from school as the crow flies, but you must remember that in those days there was no such thing as rapid transit, Brooklyn Bridges, elevated railroads or subways, electric lights, or telephones or the many other conveniences you now enjoy, so that coming nightly to my studies was something of a journey. You had to cross the East River in slow and rather irregular ferry boats, and if you had the price, (which I did not have at that time), ride on both the Brooklyn

and New York side in a horse car which jogged along at a pace of four or five miles an hour in addition to numerous stops and which sometimes ran only at intervals, so that it took the best part of two hours from my home to school and sometimes when the ferry boats were tied up by fog or ice, much longer.

"At the time, I was working at a photograph gallery and with my small salary you can imagine that a daily expense of fourteen or fifteen cents for carfare and ferry was something of a tax, so that as a general thing I walked most of the time. After leaving the gallery I would usually grab a bite to eat at a cheap restaurant. My menu was generally confined to fried clams with bread and butter, costing fifteen cents, after which meal I adjourned for dessert to an adjoining bakery where they served what was then called "Washington Pie," an awful concoction, made as I afterwards learned, from the scraps of the bakery, softened by hot water and duly sweetened with molasses filled into a tough crust, baked brown and sold at one cent for a liberal cut, about 3 by 4 inches. This so-called pie had the virtue of being extremely filling and mainly for this reason I enjoyed it greatly until one night I discovered a cigar stump imbedded in the interior of my dessert, after which it never tasted quite the same to me. The fried clams also possessed the filling property to an extra-ordinary degree, in fact they stayed with you apparently indefinitely and I have often wondered that I am alive to tell the tale. These clams were of the long elastic kind, apparently manufactured from the raw-hide or rubber bands and could, I think, have been substituted for the India rubber used by enterprising boys as bean shooters.

"While engaged in some of my lowly duties, bottle and sink washing, I scarcely dared look up at the kindly-faced old gentleman who frequently, almost daily—made the rounds of the laboratory and what was then the Natural History Museum. But one late afternoon, a red letter day in my life the great Peter Cooper thrilled me to the core of my being by taking special notice of me. Being at the time what my teacher called a very impressionable boy, I remember the great event in my life very distinctly though more than fifty years have passed since then. It was a late fall evening, and very raw and bleak outside. Mr. Cooper came into the laboratory with a muffler wound around his neck, which scarf he commenced to unwind. He was about seventy-five years old at that time and gave one the impression of being rather frail, not to say feeble of body, though keen and brilliant of mind. He was very careful of himself in those days which no doubt accounts for his living to so ripe an old age as 92. I remember that he carried a circular rubber cushion under his arm, one of those ring cushions with a large hole in the center. Without saying a word, he began to blow up the air-pillow, an operation which took several minutes, then he moved a chair near to the table at which I was working, deposited the air-pillow very carefully on the hard wooden seat and then still more deliberately placed himself upon the

(Continued on page 284)



GOVERNOR A. HARRY MOORE

STATE OF NEW JERSEY
EXECUTIVE DEPARTMENT

November 17,
19 33.

Dear Mr. Reuss:

I am happy to acknowledge the receipt of your kind letter of November thirteenth, and thank you for the opportunity of contributing my message for publication in your Diamond Jubilee Book, published in memory of the founder of the Cooper Institute.

For seventy-five years, this institution of learning has stood as a beacon light for struggling, ambitious youth, anxious for college training but without the wherewithal to realize their ambitions.

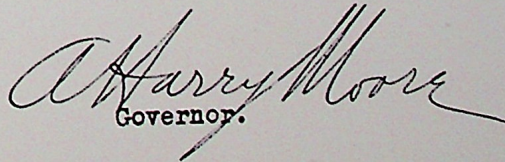
For a long time, the Cooper Union was the only place of its kind in the country where young men without money could turn for assistance in their desire to advance their education.

I am particularly glad to speak in praise of this great institution because of my own personal experience and the help which was given to me within its portals.

Under separate cover I am sending you a photograph, in accordance with your request.

Very sincerely yours,

Mr. William P. Reuss,
Cooper Union,
New York City.


Governor.

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Honorary Patron

GEORGE F. BATEMAN

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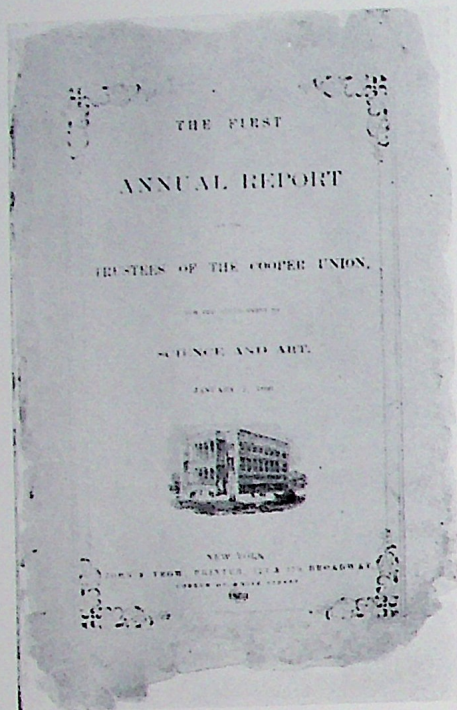
EDWARD A. MILLER

Honorary Patron

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THE DEED OF TRUST

This indenture, made and entered into the twenty-ninth day of April, in the year one thousand eight hundred and fifty-nine, by and between Peter Cooper, of the city, county and State of New York, and Sarah, his wife, parties hereto of the first part, and "The Cooper Union for the Advancement of Science and Art," a corporation created by and existing under the laws of the State of New York, party hereunto of the second part, witnesseth that the parties hereto of the first part, for and in consideration of the sum of one dollar, lawful money of the United States, to them in hand paid by the said party hereto of the second part, at or before the ensealing and delivery of these presents, the receipt whereof is hereby acknowledged, and of other good considerations them thereunto moving, having granted, bargained, sold, aliened, released, and forever conveyed and confirmed, and by these presents do grant, bargain, sell, alien, remise, release, convey, and confirm unto the said party of the second part, and to its successors forever, all and singular, the block of ground situate, lying, and being in the city, county and State aforesaid, and bounded northerly by Astor Place, easterly by Third Avenue, southerly by Seventh Street, and westerly by the Fourth Avenue, together with the building thereon erected, and all and singular the tenements, hereditaments, and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues, and profit thereof, and also all the estate, right, title interest, dower and right of dower, property, possession, claim and demand whatsoever, as well

in law as in equity, of the said parties of the first part, of, in or to the above-described premises, and every part and parcel thereof, with the appurtenances, to have and to hold, all and singular the above mentioned and described premises, together with the appurtenances, unto the said party of the second part, and its successors; in trust, nevertheless, and subject to the following conditions and restrictions to, for, and upon the following uses, intents, and purposes, and to, for, and upon such other uses, intents, and purposes as are embraced in an act incorporating the party hereto of the second part, passed by the Legislature of the State of New York, the thirteenth day of April, in the year 1859, and entitled "An Act to amend the act passed February seventeenth, eighteen hundred and fifty-seven, entitled 'An act to enable Peter Cooper to found a scientific institution in the City of New York';" and also to amend the act passed March twenty-first, eighteen hundred and fifty-seven, entitled "An act to amend the act entitled 'An act to enable Peter Cooper to found a scientific institution in the city of New York,' passed February seventeenth, eighteen hundred and fifty-seven," or shall be permitted thereby, and by any acts amendatory thereof; provided only that such other uses, interests, and purposes shall not contravene, or in any way be inconsistent with or opposed to the following specially enumerated restrictions and conditions, uses, intents, and purposes, to, for, and upon which the conveyance is specially made, that is to say:

FIRST:—That the above-mentioned and described premises, together with the appurtenances, and the rents, issues, income, and profits, thereof, shall be forever devoted to the instruction and improvement of the inhabitants of the United States in practical science and art.

SECOND:—That the management and control of the above-mentioned and described premises, together with the appurtenances, and of any other property or money at any time to belong to the party of the second part, and the receipt and expenditure of the rents, issues, income and profits thereof, shall be forever committed, subject to the conditions and restrictions herein contained, and to such other conditions as are or shall be contained in the aforesaid act of incorporation of the party hereto of the second part, or in any acts amendatory thereof, to a Board of Trustees, which shall consist at the first of the following persons, to wit: Peter Cooper, Edward Cooper, Abram S. Hewitt, Daniel F. Tiemann, Wilson G. Hunt, and John E. Parsons; that upon the death of that one of the aforesaid Trustees who shall first die, the vacancy in the said Board occasioned by his death, shall not be filled; but that forever after, except as herein especially provided, the said Board of Trustees herein above and in the said act of incorporation provided for, and to whom shall be committed the control and management of the above-mentioned and described premises, with the appurtenances and other property

or money, and the receipt and expenditure of the rents, issues, income and profits thereof, shall consist of five male persons; that the five survivors of the said six Trustees above named shall constitute the first Board of Trustees consisting of five members; that every succeeding vacancy in said Board of Trustees shall be filled by the surviving or remaining Trustees by ballot; that to elect any person Trustee shall require the vote of at least three Trustees for such person; and that the oldest lineal male descendant of Peter Cooper shall be a Trustee ex-gratia, unless he be a Trustee by virtue of original appointment herein made, or by election as herein provided. If such oldest lineal male descendant of said Peter Cooper be a Trustee by virtue of original appointment made herein, or by election as such Trustee, as herein provided, the number of Trustees constituting said Board of Trustees shall be five; but if such oldest lineal male descendant of Peter Cooper be not a Trustee by virtue of such original appointment or subsequent election, then and in such case, and until another vacancy shall occur in the said Board of Trustees by the death or removal of a Trustee other than such oldest lineal male descendant of Peter Cooper, the number of such Trustees shall be six.

THIRD:—The members of such Board of Trustees shall hold their offices as such Trustees for life; provided only that for cause any such member may be removed by order of the Supreme Court of the State of New York, on application of either of the Trustees, or a majority of the council of the "Associates of the Cooper Union for the Advancement of Science and Art," on notice to him of application for such removal; and a Trustee may resign his office, and thereupon he shall cease to be a Trustee upon the election of his successor.

FOURTH:—The premises above-mentioned and described, and the appurtenances, including all future endowments made to the party hereto of the second part, the appropriation of which shall not be specially provided by the parties making the same, and all money and property which shall at any time belong to the party hereto of the second part, and all the rents, income, issues, and profits thereof, shall be devoted to and among the following objects and purposes: the division and appropriation of such rents, income, issues, and profits to and among such objects and purposes being left discretionary with the Board of Trustees provided for as aforesaid, and it being left discretionary with such Board when and to what extent they shall carry out any of such objects and purposes, save and excepting that the course of instruction on social and political science, hereinafter provided for, shall have the preference over all the other objects of expenditure specified herein, in case there shall not be means adequate for them all, and shall forever stand pre-eminent among them.

1. To regular courses of instruction, at night, free to all who attend the same, under the general regulations of the Trustees on the application of

science to the useful occupations of life, on social and political science, meaning thereby not merely the science of political economy, but the science of philosophy of a just and equitable form of government, based upon the great fundamental law that nations and men should do unto each other as they would be done by, and on such other branches of knowledge as in the opinion of the Board of Trustees will tend to improve and elevate the working classes in the City of New York.

2. To the support and maintenance of a free reading-room, of galleries of art, and of scientific collections, designed, in the opinion of the Board of Trustees, to improve and instruct those classes of the inhabitants of the City of New York whose occupations are such as to be calculated, in the opinion of the said Board of Trustees, to deprive them of proper recreation and instruction.

3. To provide and maintain a school for the instruction of respectable females in the arts of design, and, in the discretion of the Board of Trustees, to afford respectable females instruction in such other art or trade as will tend to furnish them suitable employment.

4. As soon as in the opinion of the Board of Trustees the funds which shall from time to time be at their disposal, will warrant such an expenditure, such funds shall be appropriated to the establishment and maintenance of a thorough polytechnic school; the requirements to admission to which shall be left to the discretion of the said Board of Trustees, and shall be specifically determined by them from time to time; and which school shall, as far as possible, and as soon as possible, be made equal to the best technological schools now established, or hereafter to be established. Until the funds at the disposal of the Board of Trustees shall be sufficient, in the opinion of the Board of Trustees, for the establishment of such polytechnic school, the said Board of Trustees may furnish with rooms and accomodation for such school, and may assist in the maintenance thereof, the department of public instruction of the City of New York, the Trustees of any college or university, or any other body, individual or individuals.

5. To provide rooms, in the judgment of the Board of Trustees, suitable for the offices of a society to be organized, as provided in the act hereinbefore specially referred to, and to be called "The Associates of the Cooper Union for the Advancement of Science and Art," and to furnish to such society for its general meetings on one evening of each week, the great hall of the building, if the council of the said society shall require it so often.

FIFTH:—The above-mentioned and described premises shall be forever subject to the visitation and examination, at all reasonable hours, of the council of the said society so to be organized, and to be called the "Associates of the Cooper Union for the Advancement of Science and Art," the terms

and conditions of membership of which shall, from time to time, be prescribed by the Board of Trustees of the party of the second part; which said society shall make all rules and regulations for its own conduct and government, subject, however, to the approval of the Board of Trustees of the party hereto of the second part, and shall pay to the said Board of Trustees for the general uses, intents, and purposes of the corporation hereby created, hereby and in the said act, and any acts amendatory thereof, provided or to be provided, all fees received on the initiation into said society of members thereof; and the said Board of Trustees shall consider such suggestions of the council of the said society as shall, from time to time, be communicated to them, and shall adopt such of them as in their judgment may be practicable and expedient, and calculated to increase the usefulness of the institution herein contemplated.

SIXTH:—Upon the happening of any vacancy in the Board of Trustees above provided for, which is above provided to be filled by election, unless such vacancy shall be filled as herein provided within one year of the time when such vacancy shall occur, the same may be filled at any time before it shall be actually filled by the Board of Trustees, by the said council of the said "The Associates of the Cooper Union for the Advancement of Science and Art," by election, in such manner as may be provided by the by-laws of the said society.

SEVENTH:—Whenever a vacancy shall occur in the said Board of Trustees, to be filled by them by election as above provided, such election shall be held at a meeting of the said Board of Trustees, on and only on previous notice given at, and entered in the minutes of at least one preceding regular meeting of such Board, stating the meeting at which such election shall be held; and at such meeting, or at any regularly adjourned meeting from that meeting, such election shall be held by ballot, and the person first having three of the votes cast, shall be the trustee to fill such vacancy, provided that if such person so elected shall decline to act as such trustee, by so declining the vacancy filled by his election shall be deemed to be again created.

EIGHTH:—Neglect by a trustee of his duties as such, indicated by his absence, without excuse or permission of the Board of Trustees, from three successive regular meetings of the Board, shall always be a sufficient cause, among others, for the removal of a trustee.

NINTH:—In the event of the partial destruction of the building now erected upon the above-mentioned and described premises, the injury thereby occasioned shall be repaired by the Board of Trustees. In the event of the entire destruction of said building, the Board of Trustees shall, unless as next hereinafter provided, re-erect a building suitable for the objects and purposes

herein above enumerated, with any funds at their disposal, whenever such funds shall be sufficient, in their opinion, for that purpose; and until the funds at their disposal shall be sufficient for that purpose, such funds shall be securely invested in the name of the party thereto of the second part, and the above-mentioned and described premises may be used or disposed of by the Board of Trustees for any temporary purpose calculated to yield the largest income.

TENTH:—In the event of the entire destruction of the building erected on the above-mentioned and described premises, the Board of Trustees may, at their option, with the consent of the Supreme Court, sell and convey, and they are hereby empowered to sell and convey the said premises, with such consent, and with the proceeds of such sale and conveyance, and any other funds at their disposal, the said party hereto of the second part shall purchase such other premises as shall in their judgment be suitable, and shall thereon erect a building suitable for the objects and purposes herein before enumerated, and to such premises all the restrictions, provisions, and conditions thereof shall apply with like effect as if said premises were the premises herein granted and conveyed, as aforesaid.

ELEVENTH:—The party hereto of the second part is hereby expressly forbidden ever to mortgage the above-mentioned and described premises, or any part thereof.

TWELFTH:—The Board of Trustees shall not contract any pecuniary obligations for any current year, save such as the revenues, rents, and income of such year to be at their disposal, with five thousand dollars, or such smaller sum as will be the difference between five thousand dollars and the amount of any existing indebtedness at the commencement of such year, if there be such existing indebtedness, added thereto, will suffice to pay; it being the express intention of this provision that the said party of the second part shall never be in debt more than five thousand dollars, excepting only indebtedness incurred for any year in anticipation of the revenues, rent, and income of such year; and for any debt incurred beyond the above restriction and limitation, the said corporation shall not be liable, but the Trustees shall be personally liable: provided, that no trustee shall ever be responsible for or upon any debt, against incurring which he shall have voted when the Board of Trustees shall have determined to incur the same, or against incurring which he shall have made to the Board of Trustees, and filed with them, a written remonstrance to incurring such debt, at any time before the contract is made, by which the same is to be incurred.

THIRTEENTH:—Every trustee of the party of the second part shall be at all times at liberty, in his discretion, freely to publish any matter within his knowledge relating to the institution herein contemplated, or to its man-

agement in any respect, including any discussions in the Board of Trustees, and shall fully disclose the same whenever required, either by the Supreme Court, or by either branch of the Legislature. Full minutes shall be kept by the said Board of all their proceedings, and the ayes and noes shall be recorded on any vote on the request of any member. Neither the said Board of Trustees, nor any member thereof, shall in any way take into account any religious tenet or opinion of any professor or teacher, or of any candidate for any office in said institution, on any appointment to, or removal from, such office, nor of any student applying for admission into said institution, or competing for any of its honors or advantages; nor shall they permit any professor or teacher in said institution to make any discrimination among its students on account of their religious tenets or opinions. And the Board of Trustees, and each member thereof, shall at all times furnish any information in respect to their funds, revenues, and proceedings, which the Legislature may require.

In witness whereof, the said parties hereto of the first part have hereunto set their hands and seals the day and year first above written.

Peter Cooper (L.S.)

Sarah Cooper (L.S.)

In presence of

Edward Cooper.

Sarah A. Hewitt.

Recorded in the office of the Register of the City and County of New York, in Liber 787 of Conveyance, page 58, May 25th, 1859, at 11 o'clock A. M.

Examined by Wm. Miner, Register.

AN ADDRESS BY PETER COOPER

(Given before the School of Science and Art, July 1, 1859)

"It is, my friends, at all times difficult to speak with propriety of matters pertaining to one's self.

"The occasion that has brought us together, in order to commence the regular course of instruction in this building, is one upon which my mind has dwelt with long and anxious hope.

"It is now my privilege and joy to welcome the youth of this city and country to the benefits and privileges of this Institution.

"It will be, my friends, entirely out of my power to give you any clear idea of the labor and efforts that have been required to obtain the means necessary for the erection of this building—a building now entirely devoted, with all its rents and revenues of every name and nature, to the advancement of science and art.

"This building has scarcely been absent from my thoughts, for a single day, for nearly thirty years. I have labored for it, by night and by day, with an intensity of desire that can never be explained.

"It is now my fervent hope that the youth of my native city and country will constantly throng these halls, with eager efforts, to gain that kind of useful knowledge which is needed to make them wise, good, and useful to themselves and to their country.

"I trust that all the youth of our city and country, through all coming time, will realize that this Institution has been organized for their special use and improvement; and I trust that they will rally around and protect it, and make it like a city set on a hill that cannot be hid.

"You, my young friends, are now more deeply interested to care for, and to use this building wisely and well, than I by possibility can be.

"My time, in the course of nature, is rapidly drawing to a close; while you may have many long years to enjoy the benefits of this Institution, or to suffer the consequences of a neglect to improve the opportunities here offered, as this building has been erected solely for your advancement in science and art.

"I trust that the time will come when the knowledge and application of science and art will elevate the hearts of men above the tinsel toys and grovelling pursuits that now so effectually engross their thoughts.

"Science, my friends, is a means to develop the laws and purposes of Deity.

"It is the means, placed within our reach, that God has given, to unveil and bring to light a great and glorious purpose; an adaptation of means to ends, running through and connecting the movements of every particle of matter throughout all the vast fabric of creation.

"Such a purpose, in the mind of infinite goodness, could not do less than to organize, individualize, and immortalize the innumerable minds with power to receive and communicate happiness to all eternity.

"Science has given to man a telescopic power that enables him to penetrate the depths of space; to measure the distance, diameter, and density of all those planets that float with such majestic splendor around the heavens. With the microscopic power, man is enabled to penetrate the minutiae of creation, bringing into view wonders and beauties that language cannot describe.

"With mechanical power, we are permitted to transport ourselves around the world, as on the wings of the wind.

"With the help of mathematical and chemical powers, man is enabled to dissolve all known substances, and, as it were, to take the world to pieces, selecting those parts best suited for his uses.

"With the aid of science he guides the running brook, and causes it to flow in living streams, at his command, into every room within his dwelling.

"With the aid of science man penetrates the bowels of the earth, and drags from its silent depths those mineral products that beautify and bless the world. He rends the solid rock, and shapes it into forms of use and beauty.

"He dissolves the mineral coal into a gas, that floats beneath our streets to every dwelling, ever ready to burst forth in beauteous light at our command.

"In order to show the power of science to control the electric fire, I will ask you not to be alarmed if a momentary darkness be allowed to come over us, in order to show not only the beauty of returning light, but the power to control the elements that the Almighty has intrusted to our use."

At this instant the gas was turned off, and the two hundred burners were extinguished; they were immediately lighted again by the electric sparks from a Ruhmkorf induction apparatus.

"With these powers, it is possible for us to send our messages round the world with the speed of lightning.

"It is in the power of science to draw from nature's garden all that is good for food, pleasant to the eye, and calculated to make us wise.

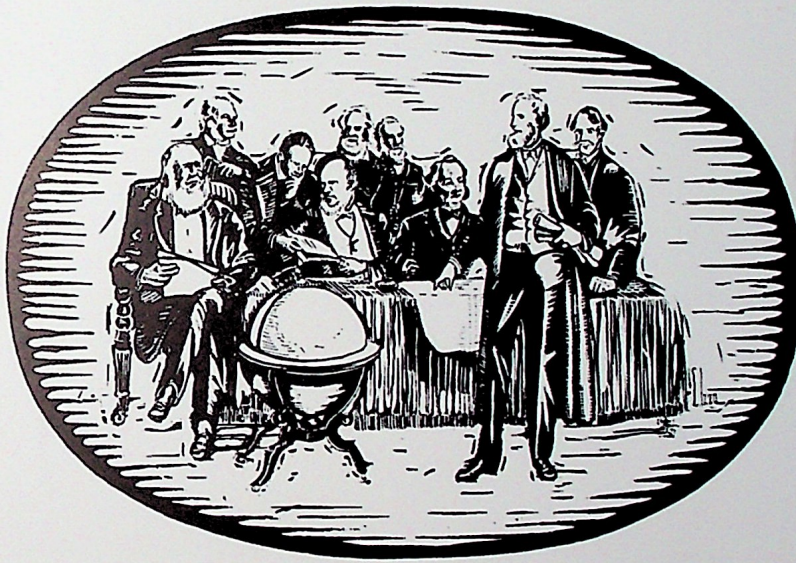
"It should never be forgotten that the universe moves in obedience to laws so wise and good as never to require to be either altered, amended, or revoked.

"It is the very power to perceive, understand, and apply these laws that elevates man above the level of the brute.

"It is the proper business of true science and philosophy to work in harmony with these laws.

"These laws, my friends, have forever connected health with temperance, and peace with virtue.

"For one, I indulge the hope that science will finally unfold the mystery of our being, and throw the law of our progress written upon the varied leaves of creation, demonstrating the wisdom, the power, and the goodness of that God who has given immortality to man."



The Cable



Facsimile of a Letter
of Capt. William Petersen

421 West Third St.,
Long Beach, California.
October 26, 1933

Mr. William P. Reuss,
Editor-in-Chief
130 Highpoint Avenue,
Weehawken, N. J.

Dear Mr. Reuss:

In answer to your letter of September 26, I am writing a few of my experiences which you may find useful in compiling the data for "The Cable".

Although but a lad of 16, I had practically finished my apprenticeship aboard a vessel carrying a cargo of sugar from Calcutta to Liverpool; in fact, only three months more and I would have been a full fledged sailor before the mast. Upon arriving in Liverpool June 16, 1866, I entreated my Captain to allow me to sign up as a sailor aboard the Great Eastern, and as I had finished the major portion of my apprenticeship he readily consented to give me a discharge. I immediately went to the London offices and signed for the voyage, and we sailed Friday, July 13, 1866.

The first part of the voyage was extremely pleasant, but the fall and winter months were mainly characterized by cold, bleak days interspersed with the usual Atlantic stormy seas. However, I was an ambitious youth and very eager to learn and consequently did not find the time monotonous. For some reason, my officers seemed to take considerable interest in me, and they no doubt encouraged me in my desire to forge ahead.

I can distinctly remember the first time the Captain ever stopped to talk to me. He asked me ~~what~~ country I was from and upon answering that I was born in Copenhagen, Denmark, he said "That is where all the real sailors come from".

After three months, I was familiar with practically all the duties aboard the ship and I was appointed Second Quartermaster. My next promotion was one year later when I was made First Quartermaster. During this time, my superior officers were spending two hours every day training me in navigation, and I never left the ship the entire time that the cable was being laid.

Two men whom I recall, Marten Napper, chief engineer, and a Mr. Kennedy, one of the firemen on the Great Eastern, were extremely interesting characters, and many are the conversations that I enjoyed with them.

One thing that I deeply regret is the loss of most of my credentials, as they would mean a great deal to me at the present time. This came about in later years when I experienced four shipwrecks.

I hope that any information contained in the foregoing paragraphs may be of some benefit to you, and I would appreciate it if you would advise me as to the price of the yearbook "The Cable", as I would like to obtain one.

Sincerely yours,

Capt H. Petersen,

The above letter was received from the last living member of the crew of the Great Eastern, the steamship which laid the first successful Cable.

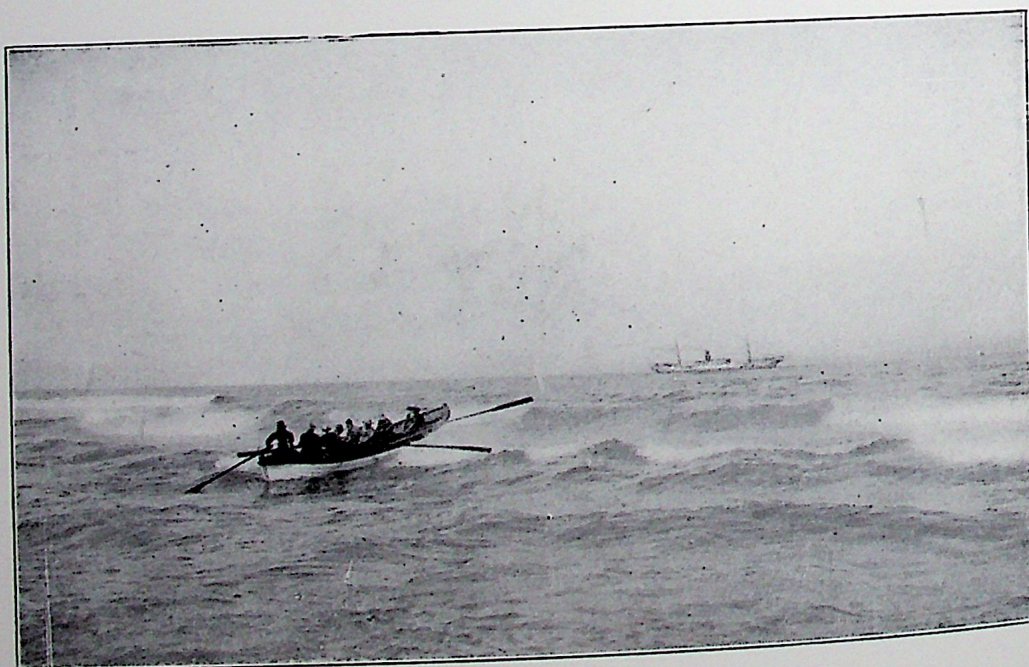
The Laying of the Transatlantic Cable

In 1854 in a house on Gramercy Park on the tenth of March, five men signed an agreement which bound them to organize the New York, Newfoundland, and London Telegraph Company for the purpose of the establishment of a system of telegraphic communication between America and Europe by the way of the island of Newfoundland. These five men were Cyrus W. Field, Marshal O. Roberts, Wilson G. Hunt, Moses Taylor, and Peter Cooper. Peter Cooper was the president and leading spirit of the new company.

Peter Cooper himself best describes the laying of the cable.

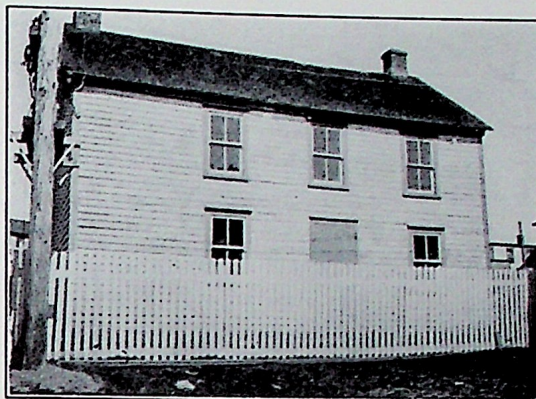
"We lost the first cable laid, which cost some three or four hundred thousand dollars, at the Gulf of St. Lawrence, which loss was occasioned by the seeming determination of the captain of the ship that towed our vessel across the Gulf to have his own way, in opposition to the directions of Mr. Buchanan, who directed him to keep a certain flag in sight as far as he could see it, in connection with a certain mark on the top of a mountain, which was visible nearly half-way across the Gulf, and whose directions he refused to obey.

"We had hired a vessel at seven hundred and fifty dollars a day, and we directed the steamer *Adger* to go to Cape Ray, and tow the vessel across the Gulf, in order to lay the cable. We went to Port Basque, and found the vessel had not arrived. We accordingly anchored in Port



Hauling in the Shore End of the Cable

Basque until she did arrive, which was two days later. On her arrival, the captain was directed to take the vessel in tow, and carry her up to Cape Ray, where we had already prepared a telegraph house, from which to commence laying the cable. On this telegraph house we placed a flag-staff, with a certain very excellent landmark on the top of a mountain some three, four, or five miles distant—a landmark which seemed to be made on purpose for our use.



The first Cable station in America, at Heart's Content, New Foundland, where the first Cable was landed in 1866.

"We had an accident at starting. We joined the ends of the cable and brought one end into the telegraph house, and made everything ready to take the vessel in tow. The captain was then directed to bring his steamer in line, take the vessel in tow, and carry her across the Gulf. In doing that he ran his steamer into the vessel, carried away her shrouds and quarter-rail, and almost ruined our enterprise the first thing, dragging the cable over the stern of the vessel with such force as to break the connection; and we were obliged to cut the cable and splice it again. The captain of the steamer had failed entirely in trying to get hold of the vessel; and after we had mended the cable, and gotten everything ready for a second attempt, he was again ordered to take the vessel in tow. We had provided ourselves with two large cables, two hundred feet long and four inches in diameter, as tow-lines, so as to be sure of having sufficient strength to tow the vessel in all kinds of weather; but the captain of the steamer so managed matters, in his second attempt to take the vessel in tow, as to get this cable entangled in the steamer's wheel, and he hallooed to the captain of the vessel to let his cable slip, in order to get this unentangled. At this, the captain of the vessel let go his cable and lost his anchor and one of our big cables, for we had to cut it, in order to disentangle it from the wheel. After that was gotten loose, there was the vessel without an anchor, and she was going rapidly down upon a reef of rocks, with a strong wind against her. It was only with the greatest difficulty that we could get the captain of the *Adger* to go to her relief, and save her from being dashed on the rocks, with her forty men on board. We had to expostulate with the captain of the steamer until the vessel was within two or three hundred feet of the rocks, before he would consent

to attempt her rescue; by the merest good luck, we got a rope out to her and saved her from going on the rocks, when she was so close to the shore that we could almost have thrown a line there.

"The captain of the steamer, however, got hold of the vessel at last, and brought her back to her place in the harbor, where we had to renew the connection of our cable, and prepare again to start.

"The third attempt to take hold of the vessel was successful, and on a beautiful morning we started to lay the cable across the Gulf.

"In a very little while I discovered that we were getting out of line with the marks that the captain had been directed to steer by. As President of the line, I called the matter to the attention of the captain. The answer I got was: 'I know how to steer my ship; I steer by my compass.' It went on a little while longer, and finding that he was still going farther out of the line, I called his attention to the fact again, and so on, again and again for some time, until he had got some eight or ten miles out of line. I then said to him, 'Captain, we shall have to hold you responsible for the loss of this cable.' We got a lawyer on board to draw up a paper to present to him, stating that we should hold him responsible for the loss of the cable, as he had not obeyed the orders of Mr. Buchanan, as agreed on. After we had served this paper upon him, he turned the course of his ship, and went just as far from the line in the other direction. He had also agreed not to let his vessel go more than a mile and a half an hour, as it was impossible, under the circumstances, to pay out the cable faster than a mile and a half an hour. It was discovered, however, that he was running his vessel faster and faster, while Mr. Buchanan hallooed, 'Slower! Slower!' until finally the captain got a kink in the cable, and was obliged to stop. This happened several times.

"So much delay took place that when it was late in the afternoon, we had not laid over forty miles of the cable out of the eighty miles that we had to go in crossing the Gulf. Then a very severe gale came up, and raged with such violence that the *Victoria*, which was a small steamer, came near being swamped; and in order to save that vessel, and the forty men on board of her, we were compelled to cut the cable.

"Subsequently, we sent a vessel to take up that part of the cable; and it was then found that we had payed out twenty-four miles of cable, and had gone only nine miles from shore! We had spent so much money, and lost so much time, that it was very vexatious to us to have our enterprise defeated in the way it was, by the stupidity and obstinacy of one man. This man was one of the rebels that fired the first gun upon Fort Sumpter. The poor fellow is now dead.

"Having lost this cable, we ordered another, and had it ready in a year or two. This time we had a good man to put it down, and we had no trouble with it.

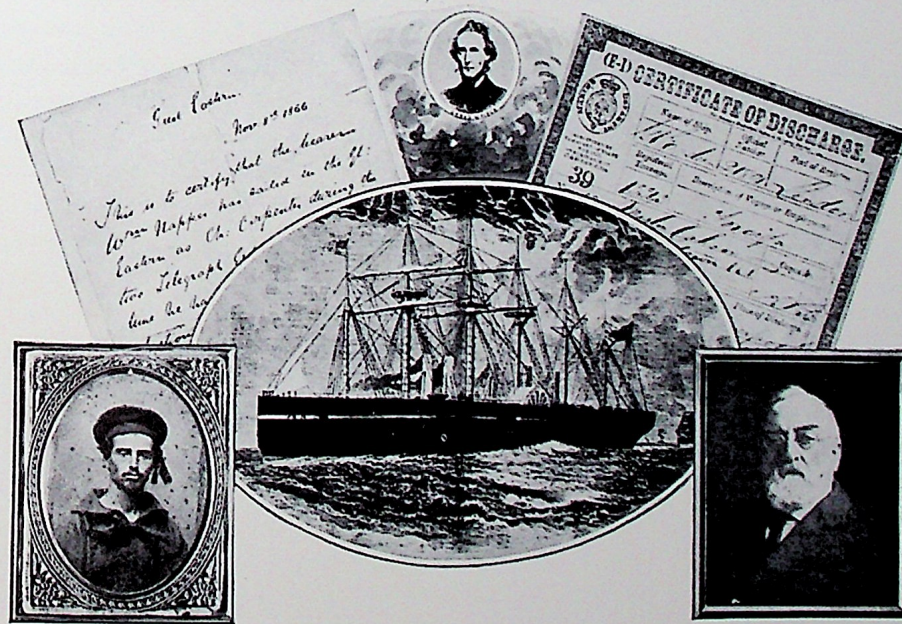
"The great question then came up: What could we do about an ocean cable? After getting a few subscriptions here, which did not amount to much, we sent Mr. Field across the ocean, to see if he could get the balance of the subscriptions in England; and he succeeded, to the astonishment of almost everybody, because we had been set down as crazy people, spending our money as if it had been water. Mr. Field succeeded in getting the amount wanted, and in contracting for a cable."

The company secured from the British and American governments promises of subsidies and the free use of naval ships for laying the cable. By the close of July 1857 the British *Agamemnon* and the American *Niagara* had each taken on 1250 miles of cable. In August they connected it in mid-ocean and in the following month landed the shore end at Heart's Content.

To let Peter Cooper continue with his story:

"... we received over it some four hundred messages. Very soon after it started, however, we found it began to fail, and it grew weaker and weaker, until at length it could not be understood any more.

"It so happened that the few messages that we received over the cable were very important to the English Government, for it had arranged to transport a large number of soldiers from Canada to China, in the war with the Chinese, and just before the transports were to make sail, a telegram came stating that peace had been declared. This inspired



Above is a picture of the Steamship *Great Eastern*, which laid the first successful Atlantic cable in 1866. At the top is Cyrus W. Field. At the left is a daguerro-type containing a photograph of Martin Cahoon, and on the right is a picture of Capt. William N. Napper. At the top are their certificates of merit and discharge issued after the trip. Both men passed on to their eternal resting place last December leaving Capt. William Peterson, the last man living who was on board during that historic trip.

the people of England with confidence in our final success. This occurred just before the Crystal Palace burned down, and we had a meeting in the Crystal Palace to celebrate the great triumph of having received and sent messages across the ocean. Our triumph was short-lived, for it was only a few days after before the cable had so weakened that messages could no longer be understood.

"One-half the people did not now believe that we had ever had any messages across the cable. It was all a humbug, they thought. In the Chamber of Commerce the question came up about a telegraph line, and a man got up and said: 'It is all a humbug! No message ever came over!' At that, Mr. Cunard arose, and said that 'the gentleman did not know what he was talking about, and had no right to say what he had, and that he himself had sent messages and gotten the answers.'

"Mr. Cunard was a positive witness; he had been on the spot; and the man must have felt 'slim' at the result of his attempt to cast ridicule on men whose efforts, if unsuccessful, were at least not unworthy of praise.

"We succeeded in getting another cable, but when we had got it about half-way over, we lost that as well." (This was done together with a British company, which, after the cable was lost, gave up hope entirely for the success of the enterprise.) "Then the question seemed hopeless. We thought for a long time that our money was all lost. The matter rested some two years before anything more was done. My friend, Mr. Wilson G. Hunt, used to talk to me often about it, for we had brought him into the Board some two or three years before. He said he did not feel much interest in it, but he felt concerned about spending so much money; and he remarked that he was not sure, as we had spent so much money already about the telegraph line, but that we had better spend a little more. So we sent Mr. Field out again. We had spent so much money already that it was 'like pulling teeth' out of Roberts and Taylor to get more money from them; but we got up the sum necessary to send Field out.

"When he arrived there, Mr. Field said, they laughed at him for thinking of getting up another cable. They said that the thing was dead enough, and buried deep enough in the ocean, to satisfy anybody. But Mr. Field was not satisfied. Finally, he got hold of an old Quaker friend, who was a very rich man, and he so completely electrified him with the idea of the work that he put three or four hundred thousand dollars into it immediately to lay another cable; and in fourteen days after Mr. Field had got that man's name, he had the whole amount of subscriptions made up—six millions of dollars.

"The cable was made and put down, and it worked successfully. We then went out to see if we could not pick up the other one. The

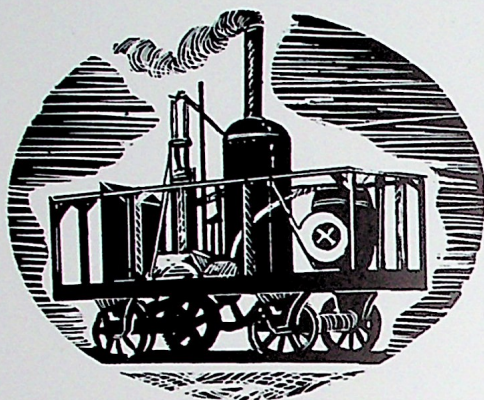
balance of the lost cable was on board the ship. The cable was found, picked up and joined to the rest—and this wonder of the world was accomplished. I do not think that this feat is surpassed by any other human achievement. The cable was taken out of water two and a half miles deep, in mid-ocean. It was pulled up three times before it was secured. They got it up just far enough to see it, but it would go down again, and they would have to do the work over again. They used up all their coal, and spent ten or twelve days in 'hooking' for the cable before it was finally caught. But they succeeded; the two ends of the cable were brought in connection, and then we had two complete wires across the ocean."



Picking up the Cable in waters three miles deep.

When the first cable was taken up, it was found that the failure had been the fault of the cable manufacturers. While placing the cable in storage in a vat provided for it until it should be needed, the laborers neglected to keep it constantly submerged. On one occasion, part of the cable had projected above the water level of the vat, and the sun shining down upon it, had melted the gutta percha outside covering, so that the copper wire was only barely insulated by a thin layer of gutta percha from the water.

"After the two ocean cables had been laid successfully, it was found necessary to have a second cable across the Gulf of St. Lawrence. Our delays had been so trying and unfortunate in the past, that none of the stockholders, with the exception of Mr. Field, Mr. Taylor, Mr. Roberts, and myself, would take any interest in the matter. We had to get the money by offering bonds, which we had power to do by charter; and these were offered at fifty cents on the dollar. Mr. Field, Mr. Roberts, Mr. Taylor, and myself were compelled to take up the principal part of the stock at that rate, in order to get the necessary funds. We had to do the business through the Bank of Newfoundland, and the bank would not trust the company, but drew personally on me. I told them to draw on the company, but they continued to draw on me, and I had to pay the drafts or let them go back protested. I was often out ten or twenty thousand dollars in advance, in that way, to keep the thing going. After the cable became a success, the stock rose to ninety dollars a share, at which figure we sold out to an English company. That proved to be the means of saving us from loss. The work was finished at last."



THE TOM THUMB

When Peter Cooper took title to a purchase of Baltimore property, it was in the midst of a great furor created by the operations of the Baltimore and Ohio Railroad, which had just been incorporated. This railroad, the first in the New World, had been called into being by the demand of the Baltimore merchants for a mercantile artery to the West, which was rapidly becoming the great consuming market of the United States and Europe. New York had just built the Erie Canal, and Philadelphia had also managed to contrive a practicable water route to the West.

Baltimore, however, had difficulties. Engineers called in by the city fathers of the Monument City had declared that no canal was available for her at an expenditure within her means. Despondency and gloom reigned in the city in the years 1824 and 1825, and so strong was the feeling of despair, that Baltimore merchants began to move to New York and Philadelphia.

But suddenly hope was revived. A prominent Baltimore merchant came back from England, and related that he had seen there mining cars which were drawn on rails by steam engines. The idea of carriages running on rails, whether with or without mechanical propulsion, was quickly taken up by the populace of Baltimore. A town meeting was held in the same year, and it was decided to apply to the Maryland legislature for a charter for a railroad company. The Baltimore and Ohio Railroad was created as a result.

Peter Cooper had bought his Canton acres with the expectation that their value would go up sharply because of the proximity of the new railroad, which, fortunately for him, and later for the Baltimore and Ohio Railroad Company, was so laid out as to pass near Cooper's property. It was found that horses could draw a double load on rails, and the railroad began operation with horse cars. But the new panacea for Baltimore seemed to be a failure; the railroad could not even meet expenses, much less make a profit. Also

more money became necessary for improvements on the road bed and grades. The leading stockholders refused to advance any further money and the operation of the railroad was suspended.

Originally the use of steam had been considered as a motive power. However, a dictum had arrived from the English engineers that steam could not be used as a propelling force on curves of less than 900 feet radius; the proposed road was one of many curves and at Point of Rocks had a curve of 150 feet radius.

When Peter Cooper heard that the line was going to be suspended, fearing for the value of his land, he went to the stockholders and remonstrated with them, but to no avail. When the question of steam came up, they told him it would never be practicable or profitable. Peter Cooper thought otherwise. He reasoned that the apparent failure of the British steam engines to negotiate narrow turnings was due to the fact that their engines employed a crank in transforming the rectilinear motion of the piston rod to rotary motion.

He estimated that the loss of power due to the crank amounted to two-fifths of the engine's efficiency. He therefore worked out an engine which did not make use of the crank, and on April 18, 1828, he was granted letters with a patent of the United States of America. Patents were then so few that his bore no number, and was signed by John Quincy Adams, the president; countersigned by Henry Clay, the secretary of state, and by William Wirt, the attorney general. Even in his application for the patent Peter Cooper had stated that "This invention is a suitable motor for hauling land carriages."

In later years Peter Cooper told the story of the actual event in these words:

"I came back to New York for a little bit of a brass engine of mine —about one horse power (it had $3\frac{1}{2}$ inch cylinder and 14 inch stroke) — and carried it back to Baltimore. I got some boiler iron and made a boiler about as high as an ordinary wash boiler; and then how to connect the boiler with the engine I didn't know. I couldn't find any iron pipes. The fact was that there were none for sale in this country. So I took two muskets, broke off the wooden parts, and used the barrels for tubing, one on one side and the other on the other side of the boiler. I went into a coach-maker's shop and made this locomotive, which I called the **Tom Thumb**, because it was so insignificant. I didn't intend it for actual service, but only to show the directors what could be done. I meant to test two things: first, I meant to show that short turns could be made; and secondly, that I could get rotary motion without the use of a crank. I effected both of these things very nicely. I changed the movement from a reciprocating to a rotary motion.

"I got up steam one Saturday night. The president of the road and two or three other gentlemen were there. We got on the truck and went out two or three miles. All were delighted; for it opened new possibilities for the railroad. I put up the locomotive for the night in a shed.

and invited the company to ride to Ellicott's Mills on Monday. Monday morning, what was my chagrin to find that some scamp had been there, and chopped off all the copper from the engine—doubtless in order to sell it to some junk dealer!

"It took me a week or more to repair the machine; then some one got in and broke a piece out of the wheel, in experimenting with it; and then two wheels, cast one after the other, were damaged by the carelessness of the turner. I was thoroughly disgusted and discouraged; but, being determined that I would not be balked entirely, I changed the engine so that the power could be applied through the ordinary connection with a crank.

"At last all was ready; and, on a Monday, we started—six in the engine, and thirty-six on the car which I took in tow. We went up the average grade of eighteen feet to the mile; made the thirteen miles to Ellicott's Mills in one hour and twelve minutes; and came back in fifty-seven minutes. The result of that experiment was that the bonds of the railroad company were sold at once, and there was no longer any doubt as to the success of the road."

The owner of the stage coach line did not exactly relish the idea of having a railroad compete with him. Intending to humiliate the railroad people and discourage them, he challenged them to a race from Riley's Tavern to Baltimore. He entered a light car drawn by a gray horse famous for its speed and endurance. The race took place on September 18, 1830 and the distance was about nine miles. The Tom Thumb which was still the only engine on the railroad, drew only one coach, containing a single passenger. For the first five miles, the locomotive led, but suddenly the boiler began to leak and the machine broke down temporarily. By the time headway could be resumed, the horse-drawn buggy was so far in the lead that the engine was unable to pass it during the rest of the race. Dismal prophets began to say that the railroad was just a toy and could never replace the horse and wagon. Time, of course, proved them entirely wrong.

In his "Autobiography" Peter Cooper makes plain that the Tom Thumb locomotive was built to demonstrate that cars could be drawn around short curves, beyond anything believed in at the time. Peter Cooper's success with the locomotive was due to the fact that he had employed a movable truck or "bogie" under the front part of the engine, while the English engineers had used rigid frames. The success of this locomotive made possible the extension of a nationwide railroad system in a country then scarce of capital, and with wide areas of broken land to traverse, since deep cuts, tunnels, long bridges, and artificial levelling might be avoided by the use of short curves.

J. H. B. Latrobe, an eye-witness of the **Tom Thumb's** first run in 1868 in an address before the Maryland Institute said of the first American locomotive:

"The machine was not larger than the hand-cars used by workmen to transfer themselves from place to place; and as the speaker now recalls its appearance, the only wonder is that so apparently insignificant a contrivance should ever have been regarded as competent to the smallest

results. But Mr. Cooper was wiser than many of the wisest around him. His engine could not have weighed a ton; but he saw in it a principle which the forty-ton engines of today (1868) have but served to develop and demonstrate. The boiler of Mr. Cooper's engine was not as large as the kitchen boiler attached to many a range in modern mansions. It was of about the same diameter, but not more than half as high. It stood upright in the car, and was filled above the furnace, which occupied the lower section, with vertical tubes. The cylinder was but three and one half inches in diameter; and speed was got up by gearing. No natural draft could have been sufficient to get up steam in so small a boiler; and Mr. Cooper used, therefore, a blowing apparatus, driven by a drum, attached to one of the car wheels, over which passed a cord, that, in its turn, worked a pulley on the shaft of the blower. The contrivance for dispensing with a crank, though its general appearance is recollected, the speaker cannot describe with any accuracy; nor is it important—it came to nothing . . . "

After demonstrating the locomotive for a few days, Peter Cooper brought it back to New York where it rested in honorable obscurity until 1880 when it came forth to take part in the Baltimore centennial celebration, Baltimore having been made a port of entry one hundred years before. It is now in the possession of the Baltimore and Ohio Railroad.

Rossiter W. Raymond praises Cooper thus:

"Two features of his Baltimore experiment were characteristic of him (Peter Cooper). The first was that he undertook it, not merely in order to vindicate his invention, but to effect a practical result, namely, to make his land speculation pay. And the second was that when he found it difficult to operate his pet invention in this experiment, he laid it aside at once—without losing an atom of faith in it, but also without persisting (as a typical enthusiast would have done) in risking upon the vindication of his personal opinion in one matter the success of another undertaking, more immediately important."

Letter from Mr. Cooper Accompanying the Deed of Trust

To the Trustees of "The Cooper Union for the Advancement of
Science and Art."

Gentlemen.—It is to me a source of inexpressible pleasure, after so many years of continued effort, to place in your hands the title to all that piece and parcel of land bounded on the west by Fourth avenue, and on the north by Astor place, on the east by Third avenue, and on the south by Seventh street, with all the furniture, rents, and income, of every name and nature, to be forever devoted to the advancement of science and art, in their application to the varied and useful purposes of life.

The great object I desire to accomplish by the establishment of an institution devoted to the advancement of science and art, is to open the volume of nature by the light of truth—so unveiling the laws and methods of Diety, that the young may see the beauties of creation, enjoy its blessings, and learn to love the Being "from whom cometh every good and perfect gift."

My heart's desire is, that the rising generation may become so thoroughly acquainted with the words of nature, and the great mystery of their own being, that they may see, feel, understand and know that there are immutable laws, designed in infinite wisdom, constantly operating for our good—so governing the destiny of worlds and men that is our highest wisdom to live in strict conformity to these laws.

My design is to establish this institution, in the hope that unnumbered youth will here receive the inspiration of truth in all its native power and beauty, and find in it a source of perpetual pleasure to spread its transforming influence throughout the world.

Believing in and hoping for such a result, I desire to make this institution contribute in every way to aid the efforts of youth to acquire useful knowledge, and to find and fill that place in the community where their capacity and talents can be usefully employed with the greatest possible advantage to themselves and the community in which they live.

In order most effectually to aid and encourage the efforts of youth to obtain useful knowledge, I have provided the main floor of the large hall on the third story for a reading-room, literary exchange and scientific collections,—the walls around that floor to be arranged for the reception of books, maps, paintings and other objects of interest. And when a sufficient collection of the works of art, science and nature can be obtained, I propose that glass cases shall be arranged around the walls of the gallery of the said room, forming alcoves around the entire floor for the preservation of the same. In the window spaces I propose to arrange such cosmoramic and other views as will exhibit in the clearest and most forcible light in the true philosophy of life.

This philosophy will always show, when rightly understood and wisely applied, an inseparable connection between a course of vice and the misery that must inevitably follow. It will always show that "wisdom's ways are ways of pleasantness, and all her paths are peace."

To manifest the deep interest and sympathy I feel in all that can advance the happiness and better the condition of the female portion of the community, and especially of those who are dependent on honest labor for support, I desire the trustees to appropriate two hundred and fifty dollars yearly to assist such pupils of the Female School of Design as shall, in their careful judgment, by their efforts and sacrifices in the performance of duty to parents or to those that Providence has made dependent on them for support, merit and require such aid. My reason for this requirement is, not so much to reward as to encourage the exercise of heroic virtues that often shine in the midst of the greatest suffering and obscurity without so much as being noticed by the passing throng.

In order to better the condition of woman and to widen the sphere of female employment, I have provided seven rooms to be forever devoted to a Female School of Design, and I desire the trustees to appropriate out of the rents of the building fifteen hundred dollars annually towards meeting the expenses of said school.

It is the ardent wish of my heart that this school of design may be the means of raising to competence and comfort thousands of those that might otherwise struggle through a life of poverty and suffering.

It is also my desire, that females belonging to the school of design shall have the use of one of the rooms not otherwise appropriated, for the purpose of holding meetings for the consideration and application of the useful sciences and arts to any of the various purposes calculated to improve and better their condition.

My hope is, to place this institution in the hands and under the control of men that will both know and feel the importance of forever devoting it, in the most effectual manner to the moral, mental and physical improvement of the rising generation.

Desiring, as I do, to use every means to render this institution useful through all coming time, and believing that editors of the public press have it in their power to exert a greater influence on the community for good than any other class of men of equal number, it is therefore my sincere desire that editors be earnestly invited to become members of the society of arts to be connected with this institution. It is my desire that editors may at all times have correct information in relation to all matters in any way connected with this institution, believing that they, as a body, will gladly contribute their mighty influence to guard the avenues of scientific knowledge from all that could mar or prevent its influence from elevating the minds and bettering the hearts of the youth of our common country. I indulge the hope, that the

Trustees will use their utmost efforts to secure instructors for the institution of the highest moral worth, talents, and capacity, fitting them to communicate a knowledge of science in its most lovely and inviting forms.

It is my design that the General Superintendent, under the direction of the Trustees, shall take all needful care of the building, and rent all unoccupied parts of the same.

The person to be appointed as a General Superintendent should be a man of known devotion to the improvement of the young. It will be his duty, not only to take charge of the building, but also to keep an office in the same, where persons may apply from all parts of the country for the services of young men and women of known character and qualifications to fill the various situations that may be open. It will be his duty to give, in the most kind and affectionate manner, such advice and counsel to all that may apply, as will most effectually promote their best interests through life.

Should any person ever be appointed a professor or superintendent who shall be found incompetent or unworthy of the trust, it is my earnest desire that such professor or superintendent shall be promptly removed.

It is my desire that students, on leaving the institution, shall receive a certificate setting forth their actual proficiency in any of the branches of science taught in the institution.

In order to encourage the young to improve and better their condition, I have provided for a continued course of lectures, discussions, and recitations in the most useful and practical sciences, to be open and free to all that can bring a certificate of good moral character, from parents, guardians, or employers, and who will agree on their part, to conform faithfully to all rules and regulations necessary to maintain the honor and usefulness of the institution.

Believing that instruction in the science and philosophy of a true republican government, formed, as it should be, of the people and for the people, in all its operations, is suited to the common wants of our nature, and absolutely necessary to preserve and secure the rights and liberties of all; that such a government, rightly understood and wisely administered, will most effectually stimulate industry and afford the best means possible to improve and elevate our race, by giving security and value to all forms of human labor; that it is on the right understanding and application of this science based as it is on the golden rule; that eternal principle of truth and justice that unites the individual, the community, the state and the nation in one common purpose and interest, binding all to do unto others as they would that others should do unto them: thus deeply impressed with the great importance of instruction in this branch of science, I have provided that it shall be continually taught, as of pre-eminent importance to all the great interest of mankind.

My feelings, my desires, my hopes, embrace humanity throughout the world: and, if it were in my power, I would bring all mankind to see and

feel that there is an Almighty power and beauty in goodness. I would gladly show to all, that goodness rises in every possible degree from the smallest act of kindness up to the Infinite of all good. My earnest desire is to make this building and institution contribute in every way possible to unite all in one common effort to improve each and every human being, seeing that we are bound up in one common destiny and by the laws of our being are made dependent for our happiness on the continued acts of kindness we receive from each other.

I desire that the students of this institution may have the privilege to occupy one of the large halls once in every month, for the purpose of a lecture to be delivered by one of their number to all students and such friends as they may think proper to invite.

The monthly lecturer shall be chosen from the body of the students by a majority vote, or a committee of the students selected for that purpose. The votes shall be counted and the name of the person chosen to deliver the lecture shall be announced, and a record made in a book to be provided for that purpose, to be the property of the institution. I desire that a record be kept of the names of the president, secretary and speaker—the subject treated, and the general course of remark. A president and secretary shall be chosen from the body of students by a majority vote, who shall preside at all meetings for lectures or other purposes, and whose term of service shall expire every three months, when another president and secretary shall be elected to take their places.

I require this frequent change, as I believe it to be a very important part of the education of an American citizen to know how to preside with propriety over a deliberative assembly.

It is my desire also, that the students shall have the use of one of the large rooms (to be assigned by the trustees,) for the purpose of useful debate. I desire and deem it best to direct that all these lectures and debates shall be exclusive of theological and party questions, and shall have for their constant object the causes that operate around and within us, and the means necessary and most appropriate to remove the physical and moral evils that afflict our city, our country and humanity.

I desire that these lectures and debates shall always be delivered under a deep and abiding sense of the obligation that rests on all—first, to improve themselves, and then to impart to others a correct knowledge of that believed to be most important, and within man's power to communicate.

To aid the speakers, and those that hear, to profit by these lectures and debates, I hereby direct to have placed in the lecture-room, in suitable position, full-length likenesses of Washington, Franklin, and Lafayette, with an expression of my sincere and anxious desire that all that behold them may remember that notwithstanding they are dead, they yet speak the language of truth and soberness.

Their lives and words of warning cannot be spurned and neglected without a terrible retribution on us and on our children—such a retribution as will cause their spirits to weep in sorrow over the crumbling ruins of all their brightest hopes for the improvement and renovation of the world.

Under a deep sense of the responsibility that rests on us, as a people entrusted, as we are, with the greatest blessings that ever fell to the lot of man—the glorious yet fearful power of framing and carrying on the government of our choice—it becomes us to remember that this government will be good or evil in proportion as the people of our country become virtuous or vicious. We shall do well to cherish the precept that the righteous (or right doers) are recompensed in the earth, and much more the wicked and the sinner. It will be found that there is no possible escape from the correction of our Father who is in Heaven, who “afflicts us not willingly but of necessity, for our profit; by His immutable law that rewards every man according to his works, whether they be good or whether they be evil.”

Desiring, as I do, that the students of this institution may become preëminent examples in the practice of all the virtues, I have determined to give them an opportunity to distinguish themselves for their good judgment by annually recommending to the Trustees for adoption, such rules and regulations as they, on mature reflection, shall believe to be necessary and proper, to preserve good morals and good order throughout their connection with this institution.

It is my desire, and I hereby ordain, that a strict conformity to rules deliberately formed by a vote of the majority of the students, and approved by the Trustees, shall forever be an indispensable requisite for continuing to enjoy the benefits of this institution. I now most earnestly entreat each and every one of the students of this institution, through all coming time, to whom I have entrusted this great responsibility of framing laws for the regulation of their conduct in their connection with the institution, and by which any of the members may lose its privileges, to remember how frail we are, and how liable to err when we come to sit in judgment on the faults of others, and how much the circumstances of our birth, our education, and the society and country where we have been born and brought up, have had to do in forming us and making us what we are. The power of these circumstances, when rightly understood, will be found to have formed the great lines of difference that mark the characters of the people of different countries and neighborhoods. And they constitute a good reason for the exercise of all our charity. It is these circumstances that our Creator has given us the power, in some measure, to control. This is the great garden that we are called upon to keep, and to subdue, and have dominion over, in order to find that everything in it is very good, that the right use and improvement of everything is a virtue, and the wrong or excessive use and perversion of everything, a sin. We should always remember that pride and selfishness have ever been the great

enemies of mankind. Men, in all ages, have manifested a disposition to cover up their own faults, and to spread out and magnify the faults of others.

I trust that the students of this institution will do something to bear back the mighty torrent of evils now pressing on the world. I trust that here they will learn to overcome the evils of life with kindness and affection. I trust that here they will find that all true greatness consists in using all the powers they possess to do unto others as they would that others should do unto them; and in this way to become really great by becoming the servant of all.

These great blessings that have fallen to our lot as a people, are entrusted to our care for ourselves and for our posterity, and for the encouragement of suffering humanity throughout the world.

Feeling this great responsibility, I desire, by all that I can say and by all that I can do, to awaken in the minds of the rising generation an undying thirst for knowledge and virtue, in order that they may be able, by wise and honorable measures, to preserve the liberties we enjoy.

Fearing a possibility that my own religious opinions may be called in question, and by some be misunderstood or misrepresented, I feel it to be my duty, in all plainness and simplicity, to state the religious opinions that have taken an irresistible possession of my mind. At the same time, I require, by this instrument and expression of my will, that neither my own religious opinions, nor the religious opinions of any sect or party whatever, shall ever be made a test or requirement, in any manner or form, of or for admission to, or continuance to enjoy the benefits of this institution.

With this qualification, I would then impress, as with the last breadth of my life, a fact which I believe to be the most exalting that the mind of man is permitted to contemplate, know, or understand—I mean the ennobling truth that there is one God and Father of all, who is over all and above all—who is forever blessed in the plenitude and fulness of His own infinite perfections; that this God is in very deed our Father; that He has created us in His own image and in His own likeness; that we may become one in spirit, and co-workers with Him in all that is good, great, and glorious, for time and for eternity.

What can be more exalting than for the child to behold an infinite parent causing all the elements and essences of the universe to become his ministers—to organize, and individualize, and immortalize undying spirits, capable of knowing him through an endless progress in knowledge and wisdom and power over the material universe forever; to feel that our Father in heaven has given to us, as individuals, an immortality and an endless growth, under laws so wise and good as never to require to be altered, amended, or revoked?

The life He has given us in His wisdom is an intelligent life—a life of accountability through our consciences, where every act becomes a part of ourselves, to live in our recollection forever.

I would impress the fact, that our Creator has used the best means possible in our formation or creation, and has given us the world, and all that in it is, with life and breath, and all things richly to enjoy. He has given all these blessings wrapt up in our capacity for an endless improvement and progress in the knowledge of our Creator, and in the power He has bestowed to receive and communicate happiness to all His intelligent creation. So that when we come really to know and feel our God is love—to realize that He is indeed the Infinite of all that is good; when we come to see that He is drawing all the elements and activities of the universe into Himself, and constantly elaborating them into higher forms of grandeur and beauty, and thus calling every intelligent creature to wonder, to love, and adore forever.

In this God I believe. I believe that He is a Spirit in whom we live, move and have our being; so that, if we ascend into the heavens, He is there, and if we descend into the depths of the earth, behold! He is there. I believe that He is filling immensity with His presence, comprehending all things within Himself, and working all things after the good pleasure of His own will; that He is the same yesterday, to-day, and forever, and that He changeth not. I believe that God is love, and that love worketh no ill. I believe that love must continue to use all its power through all eternity to give ever increasing happiness to all the creatures that He has made. Such a God I trust I shall come to love with all the heart, soul, might, mind, and strength. I believe that God is so in all and through all; that what may be known of Him is clearly seen, being understood by that which He has made, even His eternal power and Godhead; and that He is without variableness or shadow of turning. I believe that He will always work by wise and unalterable laws.

These laws, as far and as fast as they are comprehended by the faculties that He has given us, will be seen to be perfectly consistent and harmonious, and, like the stars in their orbits, "singing forever as they shine—the hand that made us is divine."

With these views, I see as through a glass darkly, all the powers of the universe moving in obedience to immutable laws, guiding them onwards and upwards through all the various developments in the scale of being to a consciousness of God, and an accountability whereby we may show our love to God by the kindness and love that we manifest to the creatures that He has made. I believe that man, to be an accountable being, must, of necessity, be intelligent and free. He must feel and know that freedom and ability are given him to do what is required, before he can ever acknowledge it just or right that he should suffer for violating laws and requirements which he has neither the power nor the intelligence to understand or obey. Believing, as I do, that all the material creation centers in, and finds its culminating point in the organization, individualization, and immortalization of free intelligent beings—beings formed to rise through instinct into knowledge, and by knowledge into an accountability to an individual, and an undying conscience, and

thence up to God—I believe mankind, throughout the world, require a religion founded on the highest idea that the human mind can form of all that is powerful, wise, pure, and good.

Such a religion we have in those principles that guided the life of Christ, by which He grew in knowledge and in stature and in favor with God and man, from His youth up, and did always those things that are well pleasing to His Father and our Father; and by doing to others as He would that others should do to Him, was enabled to overcome all evil; and although tempted in all points, as we are, yet He lived without sin. It will always be found to be our highest wisdom to follow His lovely example by avoiding all that is wrong, and by doing what good we can in the world.

Mankind will always require the great controlling principle of Christianity to be permanently fixed in the intellectual heart as the guide of life. We need a firm and unshaken belief in the inherent immortality of the soul; we need a solid conviction that God is love—love in action—love universal.

Such a belief in such a God will engage and secure our affections, and forever be to us the great reality of life. Our God will not then be to us a vaporish idea; on the contrary, he will be to us a God filling immensity with His presence and with the glory of His power. Were it possible for us to settle and establish this truth with unwavering certainty in the minds of men, temptation would be powerless. We should then see and feel that punishment inflicted for our good is as much the evidence of parental kindness as the blessings consequent on obedience to a righteous law. Every day shows me with more clearness that the great garden of the world is spread out before us filled with all the elements and inspirations of God, "who is all and in all," constantly showing us that the same soil that can produce briars and thorns, and vex us in the land wherein we dwell, can be subdued by wisdom, and made to yield and supply our wants with nature's choicest fruits. How wonderful the wisdom that "connects in this, our greatest virtue, with our greatest bliss," "and makes our own bright prospect to be blest, the strongest motive to assist the rest." Every day shows me that if we are ever saved it must be by overcoming the world of wrong within us with such powers and faculties as God has given—to be the true light to enlighten every man that cometh into the world. There is no other way whereby we can be saved but by ceasing to do evil and learning to do well. To do this we need all the helps that we can find—we need to bear each others burdens, and so fulfil the law of love. The life and teachings of Christ, showing God a father and the world of mankind our brethren, must forever stand pre-eminent over all forms of instruction, either ancient or modern. The loving spirit and principle that Christ manifested in His life and in His death, is the spirit that must finally reform the world, in the day when religion shall consist in the right action and motives of our life, instead of a mere belief in the antiquated opinions of erring men. It was His gentle spirit—the spirit of an all-embracing charity—that went about

the world, overcoming the evils of life with continued demonstrations of kindness and affection, that showed all that it is our privilege as well as duty to follow his example and obey his precepts. It was this spirit that was in the world, and the world knew it not. It is still in the world, and it is our unhappiness that we know and feel so little of its influence on our hearts and lives. By following his precepts and example we cannot fail of a happy and useful life, a peaceful death, and a blessed immortality. I trust the time will come when religion will be divorced from superstition, and the light of science will develop the laws and methods of Deity, showing a great and glorious purpose shining through all the wonders of Almighty power, by which knowledge shall cover the earth as the waters cover the great deep, when men shall know and understand the things on which their happiness depends. We shall then comprehend something of the heights and depths, and lengths and breadths of that knowledge and love of God which passes all understanding.

I have now placed in your hands the entire charge and property of this institution, and in order to further aid and facilitate the objects and purposes designed to be secured, I hereby authorize the board of control to draw on me at their pleasure for the sum of ten thousand dollars as fast as the same can be wisely used to advance the interests of this institution.

Please accept my heartfelt assurance of sincere desire that under your care thousands of the youth of our country may throng its halls to learn those lessons of wisdom so much needed to guide the inexperience of youth amidst the dangers to which they are at all times exposed.

PETER COOPER

THE CIVIL ENGINEERING LABORATORIES

The Civil Engineering Laboratories occupy the two lower floors and a mezzanine of the south-west corner of the Hewitt Memorial Building.

Under the basement floor is a fifteen thousand gallon reservoir which provides the main supply for the Hydraulics Laboratory; the pumps, a 600 and a 1,200 gallon per minute centrifugal and a 250 gallon per minute triplex plunger type, with variable speed motor drives, are set on the floor above the reservoir. A system of valves, under the ceiling, permit discharge from any or all of the pumps to any point in the Laboratory. An air compressor and receiver are available for maintaining tank pressures when necessary. Two, 2,000 gallon measuring tanks, three 100 gallon fixed and three 300 gallon movable weighing tanks receive the discharge from the other units. A tide gauge for recording pit levels, a friction line with manometer board, a recording wattmeter with controls for determining pump efficiency and an hydraulic ram are located in the basement, where also is the lower pressure tank.

On the first floor is the upper pressure tank, which extends through the mezzanine, and two weir tanks. The large weir tank can be used for testing submerged and contracted weirs and also acts as the tail race for the turbine. The small weir tank has a contracted weir and is supplied through a pipe equipped with a venturi meter and discharge nozzle. The venturi meter has mercury manometers and also a direct reading gauge.

The mezzanine floor has a meter-testing bench with several types of meters; a 12 inch diameter reaction turbine and tank fore-bay, and a 12 inch diameter Pelton wheel discharging into a tank with a triangular weir.

In addition to the fixed units, the laboratory has all necessary auxiliary equipment such a nozzle piezometers, pitot tube, gauge tester manometers, orifice and short tube plates, nozzles, scales and watches.

The Materials Testing Laboratory has a set of equipment for testing road and paving materials which has a diamond core drill, a diamond saw, grinding lap, an impact machine for toughness, ball mill, briquetting machines, an impact machine for cementation tests, Deval abrasion machine, an apparatus for testing bituminous materials and a brick rattler, all of which are located in the basement.

There are twelve sets of apparatus for making standard acceptance tests of cement. Each set has scales, sieves, Vicat and Gillmore needles, graduates, specific gravity flasks, and molds for tension briquettes and for compression cylinders and blocks. Three moist closets, a steaming apparatus and three tanks with a capacity of 3,400 specimens provide ample storage and curing space. Four briquette testing machines, a concrete mixer and metal forms for full size reinforced concrete beams and columns complete the equipment for cement testing.

The testing machinery in the basement includes a 300,000 pound capacity Emory hydraulic machine for tension, compression and bending, a 200,000 pound capacity, four screw universal machine on which columns 10 feet long and beams 20 feet long can be tested; a Charpy swing hammer impact tester and a Turner-Hatt drop hammer impact tester.

Metal specimens are heat-treated in two furnaces, and moisture content of wood, cement and aggregates determined in a gas oven, also in the basement.

The first floor has a 100,000 pound capacity three-screw universal machine with automatic and auto-graphic attachment, five 50,000 pound capacity and two 20,000 pound capacity universal machines, a 2,500 pound capacity wire tester, a 10,000 capacity beam tester with a 7 inch steel I beam, 12 feet long, an autographic or bitration bar tester, a 60,000 inch-pound torsion machine, a cold bend machine, an Upton-Lewis fatigue tester and a rotating beam fatigue machine.

A Brinnel machine, with eye-piece micrometer, a Rockwell machine and a Shore Scleroscope furnish facilities for hardness testing.

In addition to the testing machines there are numerous strain gauges, deflectometers and compressometers, a set of 2 inch, 8 inch and 20 inch Berry strain gauges, a mirror extensometer and an oscillograph.

A metallurgical microscope with attached camera and a set of grinding laps permit microscopic examination.

All of the specimens, special equipment and repairs are made in the Laboratory machine shop on the mezzanine floor. The shop has two lathes, a large and a small drill press, a planer, a power hack-saw, a wood-working machine, and a full set of bench tools.

THE CHEMICAL ENGINEERING LABORATORIES

The Chemical Engineering Department of The Cooper Union occupies the entire fifth floor of the Foundation Building. For carrying out the work of the Department, besides library facilities, there are excellently equipped laboratories for the various branches of Chemical Engineering.

There is a large laboratory for General Chemistry and qualitative analysis. In addition there are special laboratories for each of the following subjects: Qualitative Analysis, Organic Chemistry, Electro-Chemistry, Metallography and Physical Chemistry.

The laboratories are equipped with induced draft hoods; gas, water and hydrogen sulphide supply, and lockers for the individual apparatus of students. Also available is the general equipment such as balances, weights, barometers, drying ovens, gases under pressure and the usual supplementary material for rapid and effective work. The chemical laboratory also boasts of many pieces of special apparatus among which are the photographic microscope, the finest type polariscope, thermo-couples, electro-metric apparatus, and the ultra-violet light generator.

With the thought in mind that a modern progressive laboratory must always find itself in the formative stage, additional apparatus is added as needed and as funds become available. Newcomers to the already well equipped laboratory are the Littrow-type quartz spectograph for the study of emission spectra, a quartz optical system and stand for arc spectra, and a rotating sector photometer for the examination of absorption spectra in solution.

One of the most interesting divisions in the chemistry department is the laboratory for the Physical Chemistry of electrons. Here is located the apparatus necessary to study and investigate the important advances which have been made in the field of atomic and molecular structure. This apparatus consists in part of such instruments as the Pulfrich and Abbé refractometers; Hilger spectroscope with photographic attachment; constant deviation visible range type with accessories for studying emission and absorption spectra; ultra-violet lamp; optical bench; Dolezalek and Compton electrometers; Linde electroscope; Millikan oil drop apparatus; Conductivity apparatus; apparatus for studying thermionic effect and radio tube characteristics; McLeod gauge; Mercury vapor lamps; viscosity apparatus; Du Nouy tensimeter; vapor density equipment and thermostats. In addition there is provided a variety of ammeters, voltmeters, galvanometers, standard cells and equipment for the purpose of studying electro-chemical phenomena.

Advance in both pure science and industry is dependent largely upon a more exact knowledge of the properties and phenomena of metallic substances. Therefore the laboratory for Physical Metallurgy is equipped with apparatus necessary for the preparation of metallic substances for the microscopic examination of the internal structure, and the development of permanent photographic records thereof up to a magnification of 2,000 diameters.

The equipment for carrying on these investigations consists in part of various grinding and polishing machines, hardness testers, microscopes, cameras and furnaces.

A store room with efficient service keeps the students supplied with material at a minimum expenditure of time.

THE MECHANICAL ENGINEERING LABORATORIES

The Mechanical Engineering Laboratories cover an area of 5,300 square feet in the Hewitt Memorial Building and include a Steam Engine Laboratory, Internal Combustion Engine Laboratory, Refrigeration Laboratory and the Instrument and Auxiliaries Laboratory. These Laboratories afford ample opportunity for the student to become acquainted with the various branches of Mechanical Engineering.

The Steam Engine Laboratory is self contained as a power unit, the steam being furnished by a boiler located within the laboratory itself, and consisting of 100 H.P., B. & W., cross drum, water-tube steam generator fitted with forced and induced draft blowers in conjunction with a combustion control panel. The Engine equipment is provided with the necessary gauges, indicators, friction brakes, etc., for the complete test of its performance. There are the following units in this laboratory: a 75 H.P. angle compound steam engine; a steam engine; a 10 KW turbo-generator set; and a compound marine steam engine.

The Internal Combustion Engine Laboratory is equipped with an 8 H.P. gas engine and 6 H.P. kerosene engine. These engines are connected through flexible couplings to a dynamo electric machine for loading. The latter, being connected through a standard dynamometer control panel, permits the easy starting of the engines, as well as providing a convenient manner of measuring the load. Also in the laboratory are a 12 H.P. low compression injection oil engine and a 40 H.P. medium compression injection oil engine. In addition to the aforementioned, a portion of the laboratory is fire proof enclosed and contains facilities for the testing of engines of the automotive type by being provided with a 100 H.P. Sprague Dynamometer and Control Panel.

The Refrigeration Laboratory consists of a two-ton Ammonia compression system and an ammonia absorption system of the same capacity, both being completely equipped with the necessary apparatus for the heat analysis of their performance, as well as for the standard commercial tests.

The Instrument and Auxiliaries Laboratory is equipped for the testing and calibration of pressure gauges, indicators, thermometers, and other measuring instruments for the analysis of coal, illuminating, flue, and exhaust gases; for the testing of lubricating oils; and for the determination of the calorific value of fuels. This laboratory contains much apparatus for the determination of the mechanical equivalent of heat, including that constructed by the late Professor Anthony; apparatus for the study of heat flow, friction, expansion of gases and various other phenomena occurring in the Mechanical Engineering field.

THE ELECTRICAL ENGINEERING LABORATORIES

The Electrical Engineering Laboratories occupy approximately 6,300 square feet on the first floor of the Hewitt Memorial Building. Of this area some 2,200 square feet accommodate facilities for electrical measurements, approximately 2,600 square feet are devoted to electrical machines, and 1,500 square feet are used for work in communications and circuits and a departmental reference library. Instruction made possible through the facilities of these laboratories not only acquaints the student with the characteristics of apparatus and teaches manipulation, but fundamentally serves to develop ability to analyze performance in the light of accepted theory.

The Electrical Measurements Laboratory accommodates classes in the electricity and magnetism of Physics and, as well, provides facilities for advanced and refined measurements incident to electrical engineering applications. The equipment consists of galvanometers, decade resistances, condensers, Wheatstone bridges, ammeters, voltmeters and special apparatus for the elementary courses. For advanced measurements work there are maintained certified standards of e.m.f., resistance, inductance and capacitance. There are permanent installations of the Wolff, Leeds-Northrup, and the Hartmann and Brown potentiometers, of the Anthony and Carey-Foster bridges, and a complete Fahy Simplex permeameter. Insulation tests, as well as magnetic and dielectric measurements may be made with precision. A section of the laboratory is equipped for photometric investigation with a bar photometer, a spherical photometer and several portable types.

The Electrical Machines Laboratory accommodates direct and alternating machines and auxiliary apparatus, with accessories necessary for the determination of machine characteristics.

The aggregate capacity of this laboratory is at least 300 KW, including motors from fractional to 25 H.P. rating, generators as large as 15 KW, and transformers up to 15 KVA. The sources of power terminate on a laboratory switchboard and through a transfer board may be distributed to any section of the laboratory.

The motor-generator sets are for the most part directly coupled except where flexibility demands belt drive. Although some of the sets are permanently connected, in order to expedite performance, the student is required to connect a large portion of the equipment.

A mezzanine gallery extending throughout the length of the Electrical Machines Laboratory is available for work in circuits, and is being developed as a Communications Laboratory. One end of this gallery is occupied by the department library which is composed of an excellent selection of text books and periodicals necessary to the work in these laboratory courses.

THE PHYSICS LABORATORY

The Physics Laboratory is located in the front half of the second floor of the Hewitt Building. It will accommodate comfortably about sixty students.

The equipment is adapted to provide a large number of exercises as illustrations of the fundamental laws of physics with a sufficient number of pieces so that each student has his own individual apparatus and his own problem. Much of the equipment has been designed by the various members of the Department and many of the pieces have been built in the Department's machine shop. The outstanding feature of a large number of the experiments is their simplicity and directness, so that the physical law being illustrated is called forcibly to the student's attention rather than the complexity of intricate mechanism.

Nevertheless, the Laboratory also provides for precision measurements of important physical constants such as the value of the acceleration of gravity, the wave length of light, the velocity of sound, the absolute coefficient of expansion of mercury, etc. For this work there is provided an accurate Kater's Pendulum, a standard meter with a Bureau of Standards Certificate, a dividing engine, diffraction gratings, spectrometers, eye-piece micrometer microscopes, Regnault expansion apparatus, a torsion pendulum and chronograph, a material testing machine for testing the modulus of elasticity and strength of materials, etc.

During the laboratory course, each student is given only enough precision work to make him familiar with the handling of delicate apparatus and with the methods for making exact determinations, the major portion of the time being given to exercises to illustrate fundamental laws. Keeping in mind the fact that the main purpose of each exercise is to fix the law in mind, there has been provided apparatus for illustrating the laws of composition and resolution of forces, the principle of moments; the laws of machines, of centrifugal force, of fluid pressure; the use of manometers; the determination of specific gravities, coefficients of expansion, calorimetric measurements, relation of boiling point to pressure; the study of wave motion, leading to the determination of velocity of sound; the study of prisms, mirrors, lenses, gratings, and other optical instruments.

The laboratory work given in connection with courses in electricity and magnetism is at present done in the Electrical Measurements Laboratory of the Electrical Engineering Department under supervision of the Department of Physics.

The work is planned to illustrate the relation of electric units and the principles of all electrical measurements. Here are studied magnets and magnetic fields, electrostatic fields, charges and currents of electricity.

Thus, the Physics Laboratory provides the necessary fundamentals for the student before he enters upon his particular field of Engineering.

HISTORY OF THE ART SCHOOL

In the Charter and Deed of Trust of 1859 there is no mention of a Night Art School, although the School of Design for Respectable Females is given a specific charter. In the library files the reports of the intervening years between 1859 and 1864 are unhappily missing; but in the report for 1864 a Department of Architecture and Free Hand Drawing is listed for the Night School.

It seems that the Night Art School in the beginning had no separate existence, but was considered part of the Chemical and Engineering Departments. From the first, women worked in the classes in the Night School Scientific Departments. The fact in itself was most remarkable at that time; but not in the School of Design as the Day Art School was provided solely for women. One of the courses was called "Drawing from Life and Casts." This did not mean life classes in the present sense but simply drawing from the costumed model. It was not until 1910 that life classes were initiated in the Night Art School.

In 1874 the Night Art School is first listed separately from the School of Science. Until 1874 no one is named as the Director of the Night School of Art and Science. In that year the report is signed by Fitz Gerald Tisdall, Ph.D.

The world outside of Cooper Union is reflected in the following quotation:

"The panic in the money market has seriously affected the marketability of students' and graduates' work."

In 1888 George W. Plympton was made Director of the Night Art School.

In 1892 enlargements and changes in the building were made to admit more students in both the Day and the Night Art Schools.

The courses of that time in the Night Art School were:

- Elementary Architectural Drawing
- Mechanical Drawing
- Cast Drawing
- Form Drawing
- Decorative Designing
- Ornamental Drawing
- Rudimental Drawing
- Architectural Drawing
- Perspective Drawing

In 1893 the number of students was 1320.

By 1898 modeling in clay was included.

Women were still admitted only to Architectural and Perspective Drawing Classes.

In 1899 the great bequest of John Halstead and Andrew Carnegie made possible the use of the entire building for educational purposes. Formerly the school derived part of its revenue from the shops which were situated on the street floor. That was a period of enormous growth and expansion throughout the country. Many large buildings were put up and Americans at large were becoming very conscious of architecture and decoration. Formerly decorative work had been largely in the hands of foreign talent as native American workmen had not been trained in architectural or decorative modeling, hence the logical inclusion of these courses in Cooper Union.

The aim of the school was to help workmen already apprenticed or working in various trades and professions to complete and amplify their knowledge.

In 1901 came the reconstitution of the Night Art School which became a separate department and no longer part of the school of science, but still under the same director.

In 1903 Mr. Frederick Dielman was appointed Director of the Day and Night Art Schools.

In 1910 the first life class was conducted under Mr. Dabelstein.

It was recognized that courses in any of the Arts could not be confined to compartments but that a first class artist must have experience in all branches. He must know the craft side of his work by experience as well as by theory.

In 1912 life modeling was begun. In that year Leo Friedlander won the Prix de Rome. The work of the Decorative Design classes was considered in connection with the Museum facilities.

The Misses Hewitt had worked long and fruitfully to the end that the Museum should become a part of the training facilities of the schools.

The following committee of men prominent in the Arts was appointed to advise the Night Art School: E. H. Blashfield, J. W. Alexander, William A. Boring and Herbert Adams.

In 1913-1914 a new policy giving preference to students engaged in occupations relative to courses of study in the Night Art School was put into practice, thus eliminating students who might wish to learn the Arts as a side recreation and making the school more helpful to those whom the Founder meant to help.

In 1916 entrance examinations were given, designed to test the probable capacity and general personality of the applicants and to exclude student material not fitted to use the privileges of study to their own benefit, or to the credit of the school.

The Decorative Design Department showed an increasing strength and growth. New fields were constantly opening in which this course played a considerable part in the use of pictorial matter, color, ornament, lettering and effective spacing. Also the production of numberless articles useful and ornamental in wood, metal, glass, pottery, textiles, etc., usually grouped as industrial art.

The work of the life sculpture class was more definitely tied up with the architectural and ornamental modelling class, as it was realized that the two things were inseparable.

In 1918 the War was the over-shadowing fact. Cooper Union as well as others felt this disturbing influence in lessening attendance upon its various courses. The normal enrollment of 3,000 fell to 2,000. Many Cooper Union students went into the Service as the roll of honor on the second floor will show. In spite of the diminished numbers, the spirit and work accomplished in the Night Art School was excellent.

For the first time women were admitted to the classes in Decorative Design with results that were stimulating and salutary in every way.

In 1919 a class in Costume Drawing and Design was opened and made a very promising beginning.

From this point on, the work of the Night Art School seems to have followed very much the same outline each year. It continued to show growth and strength.

In 1924 a night class in composition and illustration, organized and maintained by the Ladies of the Night Art School Advisory Council, was so successful that the demand from the largely increased number of advanced students, including many from other schools, warranted the formation of a higher division of instruction. The pressure for admittance completely filled the divisions of architecture, decorative and life modeling and detailing of furniture—the latter held in the Museum. It became impossible to accommodate all the applicants for the fourth year course of drawing and the third year course of decorative design; it being only possible to admit those placed in the A and B class of applicants after the entrance examinations.

In 1926 the standards of the Night Art School were brought steadily to a higher level always with a view to giving greater practical efficiency to the students.

In 1931 Mr. Frederick Dielman resigned after many years of devoted service and was succeeded by Mr. Austin Purves, Jr. as Director of the Night and Day Art Schools.

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cushion. Then in a very kindly voice and with a reassuring smile, he began plying me with questions, asking me first where I lived, whether I had a home and father and mother, what I did for a living and the money I earned, what I was studying, and was particularly interested in, and then more especially, and in detail what I proposed to make out of myself.

"Peter Cooper always had been what in these days would be called a very strenuous worker, and I think he expected (and respected) a great deal of strenuosity in others, so that when I told him that I helped my mother out by working in a dark room of a photograph gallery on Broadway from 9 a.m. to 4 p.m. for the princely sum of two dollars per week, worked in the Cooper Union Laboratory from 4 to class time, getting the outfit ready for Professor Stone's lecture, attending the chemical classes until about 10 o'clock and then cleaning up the wreck and walking home to Brooklyn every night with a short rest on the Catherine Street Ferry where I more than once fell asleep and took free return trips until I was roughly awakened by the deck-hand. When I told this to Mr. Cooper, I think he was thoroughly convinced of the earnestness and sincerity of my purpose and accepted me as a true Cooper Union Blue. And by the way has it ever occurred to you why so many Cooper Union boys and girls make a success of life? The reason is very simple, the Cooper Union separates the wheat from the chaff of humanity for when a girl or boy have the energy, determination to work by day for a living and attend school at night for the improvement of their minds you may be sure they will be heard from in after life, and just this, was Peter Cooper's noble hobby and idea—to help those willing to help themselves if given a chance. He himself, had yearned for just such a chance, but it was not available to the men and women of his generation until, knowing the great need, he himself applied it.

"Well after this never to be forgotten first interview our beloved master came to see me often, sometimes several times a week; this friendship if I may presume to call it so, lasted for something over a year, and indeed some time after my graduation from the Institute in 1867.

"I could not of course begin to recount all the wonderful things Peter Cooper told me, or give you an adequate idea of the enthusiasm he instilled into me by his reminiscences, precepts and personality. What I do know is that the spirit and personality of Peter Cooper stamped itself so firmly upon my soul and made me so deeply desirous of emulating his example and ideals, it has profoundly influenced my entire life's career, and that I owe to him and the training received in the great Institution he founded, a very large part of such success as has come to me, and by success I do not mean money or wealth but especially the higher things in life.

HISTORY OF THE DEPARTMENTS

The pages following contain the continuations of the articles on the history of the departments. Acknowledgement is hereby made of the labor of collecting the historical data and the time consumed in the writing of these articles by the professors in charge of the departments.

ART AND ITS FUTURE

(Continued from page 29)

The Cooper Union Night Art School is at present coordinating its work and throwing heretofore separated classes into common work. Classes which at one time specialized in advertising design and fashion illustration have added to their curriculum, drawing from the figure, pictorial design and modeling. Classes which heretofore studied the drawing of the plaster cast for three years, and the figure for a fourth year, have added to their curriculum, modeling, pictorial design and lettering, and have dropped drawing from the cast. The sculptors have added figure drawing to their regular figure modeling work, and for several years have been working on the Beaux-Art Institute of Design sculpture competitions as part of their composition work.

The main important changes that have been effected are noticeable in the first year work, where all who desire to do sculpture, ornamental modeling, drawing and painting, advertising design, or fashion design, are thrown into one common course. The plaster cast has been dispensed with and the students start immediately drawing the figure, making pictorial compositions, making compositions in modeling, and in studying design. Further, applicants for all courses in the Night Art School must now take competitive entrance examinations.

The additional work given to the Night Art School student has necessitated the use of more rooms and each night, the classes on the ground floor and on the sixth floor, are filled with students. The art reference library on the sixth floor has been opened to their use, and steady demands are made upon its books for the design classes. In coordinating the work, we are tending toward the workshop idea where it will first be made clear to the student that there is much in common between those things which the student once thought were specialties.

It seems advisable that the workshop should be developed still further, enabling the most proficient student to complete a piece of work of sufficient scale and content, so that he may be graduated as a craftsman able to conceive, plan, estimate the costs and execute a piece of finished work.

DEPARTMENT OF CIVIL ENGINEERING

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The establishing of the Day School dates from 1900, with a three-year course which was soon increased to four years. In 1906 the first class to graduate from the four-year course consisted of three candidates each of whom received a diploma and the Degree of Bachelor of Engineering. One of these had pursued the Course in Civil Engineering. In 1908 the Course had been developed to include the various fundamental subjects upon which the practice of Civil Engineering depends.

The raising of entrance requirements, increase in the teaching staff and additions to the equipment have led to a gradual strengthening of the course.

With the opening of the Abram S. Hewitt Memorial Building in 1912 the enlarged space available for this department rendered it possible to add to the facilities for instruction, well equipped Civil Engineering Laboratories for the testing of materials entering into engineering construction, and for experimental study of the laws of Hydraulics.

The teaching staff which consisted of Professor Plympton alone in 1900 when the Day School was established was augmented by the addition of a part time instructor in the following year.

Upon the death of Professor Plympton in 1907, Clarence W. Hudson was appointed Professor of Civil Engineering and the following year two additional instructors were added to the staff. At the present time the teaching staff for both the Day and Night Schools numbers ten.

In 1909, upon the resignation of Professor Hudson to accept the position of Professor of Civil Engineering at the Brooklyn Polytechnic Institute, the present head of the department, Professor Fred E. Foss, was chosen as his successor.

DEPARTMENT OF ELECTRICAL ENGINEERING

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the mechanic for the Department were varied and numerous, and were to continue up to the time of his death during the winter of 1933.

The year 1912, and the construction of the Hewitt Building, saw the creation of a separate Department of Physics under Professor Albert Ball, with Professor Hartmann retaining charge of the Department of Electrical and Mechanical Engineering. It was not until 1915 that a position of Assistant Professor was added to the Department, the place being filled by Antonio Pinto, a graduate of The Cooper Union. Professor Pinto resigned in 1920, and his place was taken by Norman L. Towle who had been an engineer with the Westinghouse Company, and was a graduate of the Worcester Polytechnic Institute. Five years later there was created the Department of Mechanical Engineering.

During these years the early course in Applied Electricity under Professor Hartmann's guidance had grown into the Five Year Night Course in Electrical Engineering and, with the opening of the Day School of Engineering in 1900, additional new courses were planned and administered by him. Classes grew slowly in number of students and even in 1925, but nine men received the degree of Bachelor of Science in Electrical Engineering from the Institute of Technology, and but eighteen from the Night School of Engineering. In contrast with this, the registration in the present senior class is twenty-two in the Institute of Technology, and forty-four in the Night School of Engineering.

It was perhaps about 1922 when the number of students coming to the Department of Electrical Engineering began to show substantial increase. By 1927 it was necessary to add another man to the staff, and Abraham J. B. Fairburn, a graduate of Pennsylvania State College, was selected. Again in 1929 it was found desirable to augment the staff, and a graduate of the Institute of Technology, F. Howard Tallman, became an instructor. From about that time increasing attention was paid to improving the facilities of the then existing Direct Current Dynamo Laboratory and the separate Alternating Current Dynamo Laboratory. Gradually, machine units which were mounted on heavy wooden tables and belt driven, were replaced by modern units of the direct-coupled type, and solid floor mounting for machines displaced tables and wall benches. Gradually, plans were made for merging the separate Dynamo Laboratories to permit better utilization of existing space. Finally, the solution to the problems of securing adequate power distribution for existing Laboratory space, and of meeting increasing demand for instruction in communication, were met by plans for a mezzanine gallery to extend throughout the length of the combined Dynamo Laboratories. In contemplation of early realization of these developments, Ernest W. Starr, a graduate of Cornell, was added to the Department staff in 1931.

Authorization to proceed with Departmental plans came just as the Institute and the Department suffered the loss of the man who had been a moving spirit throughout a decade of development. In late March in 1932, Professor Francis M. Hartmann, Dean of the Engineering Schools since 1923, died. The Board of Trustees selected as Acting Dean, Professor George F. Bateman, and his appointment of Professor Towle as Head of the Department of Electrical Engineering was confirmed by them. During the summer of 1932, approximately fifty per cent was added to Laboratory space by construction of a mezzanine gallery. Approximately a third of this space is used for library reference by students of the Electrical Engineering Department, the nucleus for which is the collection of books from the late Dean's personal library, and known as the Francis M. Hartmann Memorial Collection.

Since 1932 much attention has been given to improving the facilities of the Electrical Machine Laboratory, and concurrently considerable development has been going forward as preliminary to setting up substantial courses in Electrical Measurements, Electrodynamics, and Communications. These new courses, toward which the Department has progressed appear about to be realized.

DEPARTMENT OF MECHANICAL ENGINEERING

(Continued from page 37)

had established at that University the first Electrical Engineering course in the world. A rational thinker, stressing fundamentals, he inspired with great enthusiasm his students and staff and laid down the broad foundation upon which our present courses rest. Although he established the first physical and electrical laboratories in The Cooper Union, it was not until 1901 that his plans materialized to include Mechanical equipment. The laboratories at that time occupied the first four rooms on the ground floor of the Cooper Building which are now occupied by art classes. Near the present entrance was grouped the Ames Steam Engine, the Fairbanks and Secor Internal Combustion Engines, the Rider Ericsson Hot Air Engine and the DelaVergne Refrigeration System, thus forming the first Mechanical Engineering laboratory at The Cooper Union.

Upon the death of Professor Anthony in 1908, the late Dean Hartmann was appointed his successor as Professor of Physics, Mechanical, and Electrical Engineering. As a pupil of Anthony, his great intrinsic talents had developed and matured and he thus brought to The Cooper Union a degree of sound thinking and stability of fundamentals which resulted in the excellent courses in both Day and Night Schools developed under his able guidance. These developments took a decided forward step in 1912 with the erection of the Hewitt Building and the establishment of a separate Mechanical Engineering laboratory possessing practically double the amount of equipment of the older laboratory.

In 1919, returning to The Cooper Union from naval service in the Great War, George F. Bateman was appointed as assistant professor of Mechanical Engineering for the purpose of developing a Day course in Mechanical Engineering. Up to that time, the Mechanical and Electrical courses had been identical but now there were introduced classroom courses in the various phases of Heat-Power. Plans for the enlargement of the laboratories were also begun, resulting in the floor space and equipment again being almost doubled by 1927.

By this time the Department had developed to an extent that it was deemed desirable to separate it from that of Electrical Engineering and, consequently, in 1925, Professor Bateman was promoted to the first professorship of Mechanical Engineering in The Cooper Union.

During the entire time of its existence developments in the Department have been continuous and with additions to the staff to meet the new demands, the course has been brought to the point now known by the student. Further development is now in progress in preparation for the more advanced work of the new Six Year Night Course, the underlying idea being to equip the student adequately to cope with the current needs of the profession.

DEPARTMENT OF CHEMICAL ENGINEERING

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In the following year, 1882, we find these laboratories completely refitted for Qualitative and Quantitative work and its appointments were second to none. There were accommodations for twenty-five students in Qualitative work and six in Quantitative.

The qualifications for admission required a thorough knowledge of Elementary, Applied and Theoretical Chemistry, which capable persons could acquire by attending the course of lectures given in the Night School before entering the laboratory course.

For each year's attendance in the laboratory and at examination, a certificate specifying the progress made was given, and any student who received three certificates: one for first year's Systematic Course, one for the second year in Qualitative Analysis, and one for the third year in Quantitative Analysis, was permitted to exchange them for a Diploma as an Analytical Expert. This diploma was considered a valuable recommendation to business houses.

The rules governing this work were strict and exacting. As an example: owing to the increased number of applicants, any student absenting himself one week, except in case of sickness, or without permission, was considered as having withdrawn, and his bench assigned to a new applicant. Also, at any time, a student who was not regular in attendance, or whose progress was not satisfactory, was retired. Incompetent students were not permitted to occupy desks or avail themselves of facilities to the exclusion of those who upon trial might be found more competent.

The student paid a fee of ten dollars, and in no case was he entitled to a rebate from that amount.

In addition, students who received the above Diploma were permitted to pursue later, special courses of study in Sugar Analysis, Mineral Analysis, Wet Assaying, Organic Analysis, Commercial Analysis, including examination of Foods, Drugs, etc., and in Medical and Toxical Chemistry.

After completion of either of the courses, the Diploma was exchanged for a still more advanced Diploma indicating the specialty so acquired.

The presentation of a satisfactory thesis, after two extra years engaged in the practice or devoted to the study of applied chemistry, enabled a recipient of the Advanced Diploma to exchange it for the Final Diploma of Chemical Engineer.

In passing, it is interesting to note that for over half a century there has existed all the mechanism for a seven year Chemical Engineering Course, requiring only changes in the curricula as time went on.

And so the shuttle wove for twenty years, a beautiful pattern in this perplexing tapestry called civilization, until the limited facilities could no longer withstand the earnest appeal of ever increasing numbers for admission, and so in 1892 the entire Department was enlarged and re-equipped, thereby creating accommodations for two hundred and fifty students.

The farsighted vision of Peter Cooper and in later years of Andrew Carnegie, regarding the importance of chemistry, was not always fully appreciated by those whom it should have concerned most and it was only through persistent efforts that gradually the Chemical Engineering Course developed to the stage in which we now find it.

And so the pattern of our weaving changes, and so does history, but our pioneer problems taught us to look into the future, which we do with confidence but not without concern; we have the students, and the industries require more highly technically trained men, but alas, we lack both the facilities of room and equipment which the situation demands. These must however be supplied in order that we may continue our work and maintain the prestige of The Cooper Union.

DEPARTMENT OF PHYSICS

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to include the South Store of the first floor that we find mention of an Instructor in Physics. This instructor was none other than our own J. C. Riedel. At the same time J. J. Breslawski was appointed as Physics Laboratory assistant. The next year the names of F. M. Hartmann and Louis Martin were added. Thus in three years the work of the department grew to occupy the time of five men instead of one. By 1905 the list of instructors and assistants had grown to ten, five of them working in both the Day and Night Schools. Hartmann had been given the title of Assistant Professor. The laboratories of the Physics Department had grown to occupy the four south stores of the street floor and in these were crowded in every nook and corner, the apparatus for classes in Elementary Physics, Electrical Measurements, A.C. and D.C. Machines and a Thermodynamic Laboratory.

This remarkable ten year transformation of the Physics Department from one giving a few courses in Natural Philosophy to one giving, in fact, thorough going courses in Mechanical and Electrical Engineering is certainly a tribute to Professor Anthony's ability, and the Trustees report for 1908 lists—"William A. Anthony, In charge of Department and Professor of Mechanical and Electrical Engineering." Failing health and the infirmities of age necessitated Anthony's retirement at the end of 1908 and later in that same year he died. The Staff he had assembled, inspired by his splendid example and that of his associates of other departments, endeavored to carry on.

Professor Hartmann had been advanced to full Professorship in 1907 and he was now given charge of the Physics Department with the title of Professor of Physics and of Mechanical and Electrical Engineering. In 1912, this work was moved to the Hewitt Building and a gradual reorganization was begun. Professor Albert Ball by this time had been advanced to full Professorship and was made the responsible head of the Department of Physics, which department, together with that of Mathematics, Chemistry and Drawing was made subordinate to the major departments of engineering. Until this time it had not been possible to give laboratory work in Elementary Physics to the students of the General Science Course on account of lack of room and time. The new laboratories and the reorganization of the various courses now made this possible. The old General Science Course was transformed into the separate courses of Mechanical and Civil Engineering. The short course in Applied Electricity became a course in Electrical Engineering, and the Chemical Course became the Course in Chemical Engineering. It has thus become the job of the Physics Department to furnish such instruction in Elementary Physics, Mechanics and the Principles of Electrical Measurements as will fit engineering students for the more advanced technical courses to follow.

The most recent significant improvement in the facilities of the department for carrying on its work is the construction of a Mezzanine floor in the Physics Laboratory for accommodation of the large numbers who will receive instruction by laboratory methods in Electricity and Magnetism. This equipment which will be ready for the term 1934-5, will necessitate further increases in the instructing staff. The staff at present includes sixteen names, and the courses given have been made uniform for all students of the Engineering Schools.

DEPARTMENT OF MATHEMATICS

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Professor J. J. Arnaud was placed in charge of the Department of Mathematics in 1909. Previously there had been no officially recognized head of the department, the professor teaching the most advanced subject having acted as head without the title. During the year 1910-11, Professor Arnaud resigned

and Professor W. S. Langton was secured to finish the year. In 1911 Professor Langton was placed in charge of the department and served in that capacity until his death in February, 1915. Since that time the department has been in charge of Professor H. W. Reddick.

The year 1928-29 saw the introduction of Honor Courses in the Institute of Technology. Since that time fifteen men have graduated with honors in Mathematics. Their work has included topics in Advanced Calculus, Partial Differential Equations, Fourier's Series, Bessel Functions, Probability, and Vector Analysis. In 1930, Calculus of Probabilities was added to the curriculum of the fourth year in the Institute of Technology.

DEPARTMENT OF MACHINE DESIGN

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Much time was necessarily spent over these drawings, nor was such time begrudged by the employer, since he had not yet learned that the draftsman was a "non-producer." Many drawings were made in Perspective in order to give a true picture of the eventual machine; an isometric or other drawing of similar type would have been scorned in those days. We see these fine artistic drawings reflected in many early student drawings still on hand in this department.

Beginning in 1900-01, we note that "Machine Designing" was added, and since that time the various sub-divisions of a complete course in "Machine Design" have become an important part in the curriculum given by this department. All this is in accordance with the trend of times, in that machines have become so complex that the engineering features have to be based on the underlying sciences. While drawings are still an extremely important part of design, we now find them to be strictly utilitarian; accuracy, carefulness and neatness are still as necessary as ever, but wash drawings, perspectives and other time consuming elaborations are only occasionally seen, and then are used mainly for publicity purposes. So we see, in the drawings made in this department today, the plain, easily made and easily interpreted drawing, sometimes not even inked in; but hidden behind these drab features, lies a wealth of research, calculation and basic science.

THE DEBATING CLASS

(Continued from page 47)

above all gather and gather, in order to give forth. All these things he joys in doing, as he progresses in public speaking.

This fine old class, kept ever young and vigorous by its yearly new members, is well abreast of the world's interests. Practically all subjects are open to discussion. City, State, Federal, and International problems as well as social and humanitarian ones are selected. Many men who have attained high and honorable positions remember with pleasure and gratitude their evenings in the Cooper Union Debating Class.

Here is a very limited but interesting list of older and younger members of the class.

Recorder John W. Goff, Justice of the Supreme Court

Hon. Charles W. Dayton, Justice of the Supreme Court

Hon. George Gordon Battle, eminent lawyer

Hon. Victor J. Dowling, State Senator, Supreme Court Appellate Division

Hon. Thomas T. C. Crain, Justice of Supreme Court, District Attorney of New York County

Hon. A. Harry Moore, Governor of the State of New Jersey

Justice William P. Burr, Head of the Supreme Court of New York

Hon. Samuel Seabury, Judge of Court of Appeals, Justice Supreme Court, practicing lawyer New York City

Hon. James A. Hamill, former Congressman from New Jersey and now a practicing lawyer in Jersey City

Of the younger men we have:

Supreme Court Justice Louis De Witt Gibbs (deceased)

Former State Senator Abraham Kaplan, President of the Civil Service Commission of New York

Judge Adolph Stern, Municipal Court, New York City

Assemblyman Albert D. Schanzer, lawyer

David L. Cohn, distinguished lawyer in Bronx and Manhattan

This list includes preachers, doctors, lawyers, judges, Senators, Assemblymen, dentists, merchants, salesmen, journalists, and advertising men.

Those who have reaped the benefits of this famous class have developed an asset that has enriched living and given them the ability to do the world's work better.

THE ELOCUTION CLASS

The Elocution Class is the sister class to the Debating Class and develops in the student more knowledge of literature, acquaintance with authors of prose and poetry. It gives more analytic instruction and criticism in the use of the voice, in sound production, and those kindred subjects which develop the art of expression. This class has an equal number of young women, very often more, whereas the Debating Class, although open to women, attracts very few for active participation. Students often attend both, thus striving to develop the English and literary side of their education. Students discover here what a good memory means in mental make up. As they interpret the fine thoughts and feelings of poets and orators they enrich their own thought and speaking ability.

Many among the younger men will testify that the Debating and Elocution Classes have been a moral and mental refuge, a center of friendships and an uplift for the spirit. In such classes men and women measure themselves against each other, rise to higher levels, and meet directing influences undreamed of before.

ARCHITECTURAL DEPARTMENT

(continued from page 49)

struction and building details and isometric projections, Second year, mechanical details, shop drawings, stair constructions in wood, stone and iron, the designing of an interior showing such stairs, and the design and details of a small cottage. Third year, the students are segregated; draftsmen, decorators, designers and allied occupations are entered in the designing section, and mechanics and all others are entered in the construction section. The students in the Orders section were transferred to design. In the Construction section the student prepares sketches, in accordance with an outlined problem of a proposed building and after approval prepares finished drawings and details of building construction embracing all the work to be done in constructing the building. In the designing section the student is taught the rudiments of design and the drawing and detailing of buildings in Classic style. All third year students devote one evening a week to the study of plan-reading and estimating. Fourth year: Construction. The instruction in this year amplifies the work started in the third year. The student will be required to solve a problem of the construction of a building of a more complex nature. He must furnish working drawings, etc. to illustrate the principles of building construction as incorporated in the more complicated structural elements.

In the Design division the student amplifies the work commenced in the third year. Two more complicated problems are to be presented. Buildings of a public character are generally chosen. The landscaping is also studied. All fourth year students devote one evening a week to the study of perspective.

During the World War applications for admission dropped off materially; and classes then in session were considerably depleted, as many of the students served their country and flag.

After the War we began rebuilding; applicants for admission were examined by a competent board of examiners, and undesirables and uneducated applicants were eliminated. The study of free-hand drawing and of lettering was added to first year work, and the construction of shade and shadow casting and of color blending was made part of the second year. A course of lectures on Ancient and Modern Architecture was also provided.

At the present time the roster shows three hundred and eighteen students, fifteen instructors, one lecturer and two librarians. Some difference between this and the seventies. This is what the Founder of the Institution, Mr. Peter Cooper and the Boards of Trustees have done for you; and those who went through before you.

In closing let me advise the students that the foundation through the education you have received, has been laid or built for you. Upon this foundation you build your own future by study and interest in whatever your work may be; do not stop, keep on studying. Forget the idea that you know enough. Specialize, do not go with the crowd; and remember that the Founder gave his all for you: and should you become possessed of worldly wealth reciprocate, think of your Alma Mater.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

(Continued from page 201)

experimental lecture on Music and Sound with optical projection of sound waves from phonograph records by Professor Bateman; an exhibit of engineering machinery and apparatus in the adjacent rooms and corridors; refreshments in the Physics Laboratory.

The Branch was very active during the following year. Papers on various engineering subjects were presented by members of the Senior Classes. In the February meeting Frank B. Gilbreth, one of the foremost exponents of the science of motion study, addressed the branch on "The Right Way To Do Work." In March the second joint meeting with the A.I.E.E. and A.S.C.E. was held. The meeting was largely attended and was a decided success. An interesting exhibit of engineering apparatus was held in the main corridor.

During the 1923-1924 term the Branch was addressed by the President of the A.S.M.E., Mr. John L. Harrington on "The Financial and Business Side of Engineering," by Mr. Olaf G. Gerdin, Assistant Engineer of the Economics Division I.R.T. on "Progress in Modern Stations" and Thomas E. Keating, Engineer in the Turbine Department of the Westinghouse Co. on "Observations of Modern European Power Plants."

The members made several interesting visits during the Fall and Winter. A tour into the Holland Vehicular Tunnel then under construction beneath the Hudson River proved a rare experience both in observing tunnel work and passing through the compression and de-compression chambers. A visit to the Ford Motor Plant at Kearney, N. J. afforded an opportunity to see a manufacturing plant operating under quantity production. Other visits included marine and stationary power plants. At the annual meeting of the Student Branches of the metropolitan district held in April, the Branch chairman Charles A. Gramling of the night senior class was elected chairman of the convention. For his devoted services to the Branch, Mr. Gramling was selected to attend the Annual Spring Meeting of the A.S.M.E. which was held in Cleveland, Ohio.

The first meeting of the new term was held Saturday, November 22, 1924. Mr. George A. Orrok, Consulting Engineer of the New York Edison Company spoke on "The World Power Conference held in London, July, 1924." Prior to the Christmas vacation a meeting was held at which all the Mechanical Engineering students of the Institute of Technology attended.

Talks on the "Field of Mechanical Engineering" and the "M. E. Course at Cooper Union" were delivered by Professor George F. Bateman and Fred H. Buhrendorf, class of 1925. Motion pictures of a technical and non-technical nature rounded out the program. The Branch took an active part in the Metropolitan Student Branch Convention held in March. The delegates held important committee assignments and the Cooper Union Orchestra under the leadership of Mr. H. F. Roemmele, a member of the Senior Class, furnished the musical entertainment during the Buffet Supper.

The following year saw more addresses by students. The papers covered a variety of topics such as "Motor Bus Design"; "Submarine Design" and "High Temperature Insulation." The January meeting was addressed by F. J. Schlink of the American Engineering Standardization Committee. His topic "Standardization in Industry" proved very interesting. The remainder of the year was devoted to inspection trips to large power plants and manufacturing establishments.

L. P. Alford, Vice-president of the Ronald Press addressed the Branch at the opening meeting November 20, 1926 on "Scientific Management of Industries." On December 23rd a meeting was held for all the Mechanical Engineering students of the Day School. Engineering and non-technical films were shown. Monthly meetings at which student papers were presented were held until the end of the term.

The fall meeting, November 1927, presented R. J. S. Pigott of the Public Service Production Company of New Jersey. He spoke on "The Modern Tendencies in the Production of Steam Power." The Alumni Dinner, in celebration of Founders Day, was held at the school on February 12th. This occasion was also used for the formal presentation of the original collection of photographs of the past-presidents of the A.S.M.E. parent society. This collection, which was given to the M. E. Department by the A.S.M.E. through the efforts of the honorary chairman, is arranged around the walls of the Instruments and Auxiliaries Laboratory.

At the meeting held in January 1929, Professor Alexander Klemin, Director of The Guggenheim School of Aeronautics at New York University spoke on Aeronautics. On Saturday, April 6, 1929 the third joint meeting of all the Branches was held in the Physics Lecture Room. The Day and Night Math Clubs cooperated in the arrangements. The newly organized A.I.Ch.E. Branch was introduced to the group by Edward Trapani, Chair-

man of the A.S.M.E. The principal address was delivered by Harvey N. Davis, President of Stevens Institute of Technology. His topic "Liberal Education for the Young Engineer" was one of vital interest and was well received. Several musical selections and motion pictures rounded out the program after which the group proceeded to the Physics Laboratory where refreshments were served.

The regular meetings of the following year were all devoted to the presentation of student papers. These included the Mercury Turbine; Benson and Loeffler Boilers; High Pressure Steam and the Fatigue of Metals. The Christmas meeting was held Decemebr 23rd and consisted of afternoon and evening sessions. The afternoon session was devoted to talks on Mechanical Engineering followed by technical films. The group adjourned to a local restaurant for dinner, after which they returned to the Physics Lecture Room for the non-engineering program. Films of this nature were shown. These were followed by a talk on "Music and Sound" by Professor Bateman. The lecture was illustrated by slides and phonographic records.

The meetings held during 1930-1931 were given over to the presentation of student papers. W. A. Vopat, of the Day Senior Class, now instructor in the Mechanical Engineering Department, gave a paper on the East River Generating Station. Frank Svuger, Night Senior, spoke on "Powdered Fuel Burners for Scotch Boilers." The Yuletide Party was held on December 23rd. The afternoon program consisted of the following: "The Field of Mechanical Engineering"; "The C. U. Mechanical Engineering Course" and "The A.S.M.E. Student Branch." These talks were followed by "Mechanical Engineering from Motion Pictures." The group proceeded to the restaurant for dinner. At each place there was a printed program and menu. This being the first year of the language courses, the printing was in German. Oberstudent Sydney Levy '32 acted as "geselligkeitskämpe" and made this a fine get-to-gether. The evening program was of a non-technical nature. A most interesting talk was given by Professor Bateman on "Eine Idyllische Sommerreise, 1931" (mit Lichtbilder). This was a description of his summer tour through Austria, Italy and Switzerland. Because of the additional administrative duties which Professor Bateman assumed when he was appointed Acting Dean it was necessary for him to relinquish his position of Honorary Chairman which he held since the inception of the Branch. Mr. Herbert F. Roemmele, senior instructor in the Mechanical Engineering Department, was appointed Honorary Chairman November 18, 1932, by Mr. Conrad N. Lauer, President of the A.S.M.E.

In 1932 the Parent Society instituted a New Plan for Student Branches and Members. A meeting was called Wednesday, November 30. Professor

E. F. Church, Jr. and Mr. Ernest Hartford members of the committee on relations with Colleges outlined this new plan in detail. The Branch voted to accept the plan. Some phases of the new policy will be enumerated. The country is divided into eight regions or groups. Student Branch members now become Student Members of the A.S.M.E. This entitles them to nearly all the privileges of a member. These include a gold pin, "Mechanical Engineering," A.S.M.E. news, employment service, use of Engineering Library, use of Student Loan Fund, privilege of competing for cash awards. Each group holds a student conference once a year. The meetings are presided over by students and student papers are presented in competition for cash prizes. The Cooper Union Branch is a member of Group 2 together with seventeen other eastern college Branches. The first Group 2 conference was held at Lehigh University April 22nd-23rd. A complete and full program was arranged for the two days. The Cooper Union Branch was represented by Acting Dean Bateman, Mr. Roemmele, Mr. Vopat and twelve student members. The sessions were held in the new Packard Laboratory. The chairman of the C. U. Branch, Lester E. Bauser presented a paper on "Development of the American Diesel." Plant visits to the Bethlehem Steel Co., International Motors; Ingersoll Rand Co., and to the Lehigh University Plant and Laboratories proved very interesting and instructive.

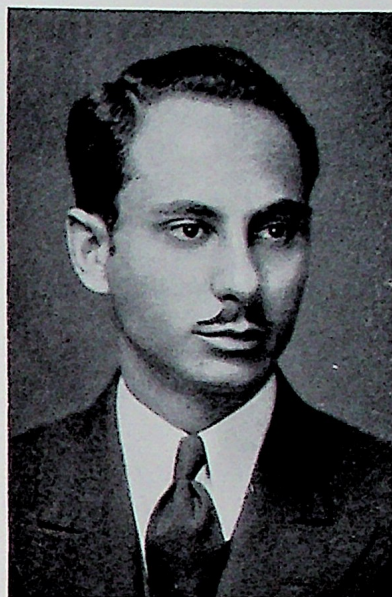
Student papers were presented at the Branch meetings. Mr. Bauser was awarded a sterling silver cigarette box for the best paper of the year.

The parent society is fostering the plan for student papers rather than outside speakers and this is being followed at the Branch meetings. A number of papers are being prepared for the coming year. The student presenting the best one will also deliver it at the second Group 2 conference which is to be held at Philadelphia April 9th-10th. A few of the senior students are competing for the Charles T. Main award of \$150. The subject this year is "Air Conditioning—Its Practicability and Relation to Public Welfare."

The first meeting of the year, was held February 20, 1934. Mr. W. Van Haitsma, in charge of placement and extension, of the Boeing School of Aeronautics delivered a paper on "Recent Developments in Air Transportation." Motion pictures were shown tracing the history of aviation from the Wright Brothers' first plane to the Besler steam driven airplane now in the experimental stage and also showing the manufacturing processes at the Pratt and Whitney plant. This meeting, which was well attended, started the year's activities, and from the well arranged meetings which are to follow, a successful year's work is in view.

Committee on Art
for
The 1934 Cable

Austin Purves, Jr., Art Director
David Hymes, Chairman
Frank Piliero
Charles Gilbert
Wallace Harrison
Lucy Ciccarelli
William P. Reuss



David Hymes

The decorations contained in this book were selected from students' work submitted in competition. The names of the winners appear below.

Lucy Ciccarelli	Rose Leibowitz
Milton Drieblatt	Irving Papiroff
Frank Haas	Edward Raimondi
Louis Izzo	Jack Skolnik
Irving Kabat	Louis Szalay
Louis Krachow	Joseph Zvacs

RECOGNITION

Out of every crowd comes a volunteer who then becomes a leader. So in every class in Cooper Union stands forth the Cable Representative. This ability and assistance of those whose names appear below is recognized.

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School of Architecture

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R o s t e r

INSTITUTE OF TECHNOLOGY

First Year

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CE, EE & ME SECTION 2

TECH.	ADAMO, JOSEPH JAMES	240 Elizabeth St., New York, N. Y.
1936	BAPTISTA, FREDERICK WM.	510 West 162nd St., New York, N. Y.
CE	BLACK, IRVING	1973 Douglass St., Brooklyn, N. Y.
EE	CAPO, JOSEPH JAMES	213 East 34th St., New York, N. Y.
ME	CARDENAS, LOVELL FRANK	2301 — 1st Ave., New York, N. Y.
	DECKER, HAROLD DUNNING	934 East 179th St., Bronx, N. Y.
	FISCHER, EDWARD GEORGE	700 East 139th St., Bronx, N. Y.
	FLETCHER, ROBERT JOSEPH	43-51 — 166th St., Flushing, L. I.
	FOX, SANFORD WM.	2120 — 71st St., Brooklyn, N. Y.
	GERHOLD, ROBERT AUGUST	1230 East Tremont Ave., Bronx, N. Y.
	GLASS, SHERMAN	264 Ryerson St., Brooklyn, N. Y.
	GOLDSTEIN, ABRAHAM	487 Montgomery St., Brooklyn, N. Y.
	GOULD, ELIOT NOAH	746 Kelly St., Bronx, N. Y.
	GRAUS, HYMAN	1617 Prospect Pl., Brooklyn, N. Y.
	GROSSMAN, BEN	454 Paulison Ave., Passaic, N. Y.
	GUTTENMACHER, DAVID	300 Georgia Ave., Brooklyn, N. Y.
	HALDI, VICTOR FREDERICK	41-49 54th St., Woodside, N. Y.
	HANKIN, HARRY G. L.	1937 Clinton Ave., New York, N. Y.
	HEINE, HARVEY W.	1193 Fulton Ave., New York, L. I.
	JAGELER, WILLIAM HERMAN	103-35 97th St., Ozone Park, N. Y.
	KING, JOHN JOSEPH	685 Sterling Pl., Brooklyn, N. Y.
	KLEBAN, BERNARD	302 Pulaski St., Brooklyn, N. Y.
	KOENIG, FRED VICTOR	2120 — 22nd Dr., Astoria, L. I.

KORN, FRED	326 East 100th St., New York, N. Y.
KRONISCH, LEO	117 East 7th St., New York, N. Y.
LAST, BERNARD	589 Tinton Ave., Bronx, N. Y.
LeMAIRE, JOHN ALBERT	231 Otis Ave., New Dorp, S. I., N. Y.
LEVINSON, MURRY	2014 — 81st St., Brooklyn, N. Y.
MOSER, CHARLES HERBERT	50 Broadway, Rockville Centre, N. Y.
QUINN, JOHN, F.	789 MacDonough St., Brooklyn, N. Y.
RUZIKA, JOSEPH WILLIAM	624 — 4th St., Lyndhurst, N. J.
SHAPIRO, JACOB HENRY	91 Columbia Ave., Passaic, N. J.
SUSSMANN, WILLIAM ANTHONY	88-42 Union Turnpike, Glendale, L. I.

CE, EE & ME SECTION 3

CHERTOV, ROBERT	472 Myrtle Ave., Coytesville, N. J.
CONNELLY, WILLIAM JAMES	134 Munro B'ld., Valley Stream, L. I.
LASK, GEORGE	67 Grafton St., Brooklyn, N. Y.
LIEBER, HENRY GEORGE	80-49 — 88th Road, Woodhaven, N. Y.
LIPSCHITZ, DAVID	4612 — 12th Ave., Brooklyn, N. Y.
MARRONE, ADOLPH ALFRED	133 North 5th Ave., Mount Vernon, N. Y.
MAZURKIEWICZ, SIGMUND	288 Prospect Ave., Brooklyn, N. Y.
McAULIFFE, JAMES JOSEPH	133 Beach 80 St., Rockaway Beach, N. Y.
MIKULKA, CHARLES	478 Brook Ave., Bronx, N. Y.
MITCHELL, WILLIAM LEHMAN	88 Fort Greene Pl., Brooklyn, N. Y.
MOORE, VINCENT TIMOTHY	88 Park Avenue, Port Washington, N. Y.
MURPHY, CARROLL T. G.	141 Livingston Ave., Yonkers, N. Y.
OWEN, PAUL HOLMES	17 Orchard St., Huntington, N. Y.
PATT, ABRAHAM	315 Hopkinson Ave., Brooklyn, N. Y.
PEIRANO, JOHN JAMES	1684 West 10th St., Brooklyn, N. Y.
PHILIP, FRANK PAUL	336 East 13th St., New York, N. Y.
POLLYEA, MYRON HERBERT	2105 East 14th St., Brooklyn, N. Y.
POTEGAL, SOL	308 Glenmore Ave., Brooklyn, N. Y.
SANDLER, ALBERT	159 Beach 81st St., Rockaway Beach, N. Y.
SCHENKER, BERNARD	1308 Palisade Plaza, Hudson Heights, N. J.
SCHWARTZ, FRANK	1268 East New York Ave., Brooklyn, N. Y.
SHALITA, MARTIN	580 Maple St., Brooklyn, N. Y.
SHANAHAN, LAWRENCE WILLIAM	34 Highland Ave., Port Washington, N. Y.
STILLMAN, ISADORE	178 West Runyon St., Newark, N. J.
STODOLA, EDWIN KING	600 East 26th St., Brooklyn, N. Y.
TEITLER, ALBERT	109-18 119th St., Richmond Hill, L. I.
TRELLA, JOHN JOSEPH	540 Van Houten Ave., Clifton, N. J.
VAN RENSSELAER, SCHUYLER KILIAEN	36-40 Bowne St., Flushing, N. Y.
WALES, HENRY MENDON	19 Sylvan Pl., New Rochelle, N. Y.
WEBER, JOHN ALEXANDER	1265 College Ave., Bronx, N. Y.
WEBSTER, LYLE BEEKMAN	90-07 — 171st St., Jamaica, N. Y.
WISWALL, JOSEPH M.	Old Dock Road, Closter, N. J.
YOKOTA, GEORGE JOHN	301 West 112th St., New York, N. Y.
ZUCKER, DAVID	1683 Boston Road, Bronx, N. Y.

TECH.

1936

CE

EE

ME

Third Year ChE SECTION

CORNACOFF, ISADORE	81 Tulip St., Passaic, N. J.
DUNSAY, SOL HERZEL	675 East 233rd St., Bronx, N. Y.
ELLIS, WILLIAM ARTHUR	10426 — 124 St., Richmond Hill, L. I.
GLADSTONE, JOSEPH	44 Ave. D., New York, N. Y.
GOUGUELL, BORIS MICHAEL	200 East 166th St., New York, N. Y.
KAPLAN, STANLEY J.	1312 Leland Ave., Bronx, N. Y.
KESSLER, LEO	849 East 156th St., New York, N. Y.
McGUINNESS, THOS. P.	1668 East 10th St., Brooklyn, N. Y.
MEDOFF, JACK IRWIN	262 Hewes St., Brooklyn, N. Y.
MOLLOY, CHARLES THOMAS	1749 Kimball St., Brooklyn, N. Y.
MOTEJZIK, CHARLES	30-59 48th St., Long Island City, N. Y.
PAVLACKA, CHARLES JOSEPH	1807 Crotona Ave., New York, N. Y.
PISETZNER, MURRAY	301 East 120th St., New York, N. Y.
ROSS, MADELINE	24-54 28th St., Astoria, L. I.
SKREK, FRANK	56 Paulson Ave., Ridgefield Park, N. J.
SUESHOLTZ, HERBERT DANIEL	147 Ocean Ave., Brooklyn, N. Y.
WEYAND, ROBERT WESLEY	7612 Colonial Road, Brooklyn, N. Y.

TECH.

1935

ChE

WOLSKY, ALEXANDER.....260 Tompkins Ave., Brooklyn, N. Y.
 ZAHN, ALLEN WILLIAM.....43 Lakeside Dr. Rockville Centre, L. I.
 ZUCKERMAN, HENRY.....464 East 145th St., New York, N. Y.

CE SECTION

TECH. BERRES, DANIEL S.....2991 Ripple St., Brooklyn, N. Y.
 1935 BIHLER, DAVID WARD BENSON.....3738 Olinville Ave., Bronx, N. Y.
 CE BOOK, JOSEPH EMANUEL.....2470 University Ave., New York, N. Y.
 DUBIN, MILTON.....2505 Lorillard Pl., New York, N. Y.
 GADZUK, JOHN.....428 East 14th St., New York, N. Y.
 HARTMAN, BYRON KING.....86 Longview Ave., Hackensack, N. J.
 HENRICKSEN, ARTHUR MONROE.....7205 — 10th Ave., Brooklyn, N. Y.
 HIRSCHMAN, PAUL.....131 East 169th St., New York, N. Y.
 JACKSON, D. WIRTH.....20 Sammis Ave., Babylon, L. I.
 KAPLAN, HYMAN.....878 Longwood Ave., Bronx, N. Y.
 KUDAK, WALTER FRANK.....718 West Blancke St., Linden, N. J.
 KUMERDANK, ALBERT WARNER.....239 Battery Ave., Brooklyn, N. Y.
 LEVITZKY, WILLIAM.....259 East 10th St., New York, N. Y.
 MOFSENSON, JACOB.....1363 — 47th St., Brooklyn, N. Y.
 PENSO, LEONARD E.....Crestwood Pl., Great Neck, L. I.
 PLUNKETT, GERARD JOSEPH.....432 — 73rd St., Brooklyn, N. Y.
 ROSS, JOSHUA ALEX.....362 — 17th St., Brooklyn, N. Y.
 SCHWORTZ, ELI.....2004 Douglass St., Brooklyn, N. Y.
 SHAPIRO, FREDERICK.....482 Hancock St., Brooklyn, N. Y.
 SLOBODOW, JOSEPH.....134 Manhattan Ave., Brooklyn, N. Y.
 SOTTOSANTI, JOHN S.....226 Bruce Park Ave., Greenwich, Conn.
 STEIN, DAVID.....53 Myrtle Ave., Passaic, N. J.
 WEINSTEIN, HERMAN HARRY.....7813 — 68th Ave., Middle Village, N. Y.

EE SECTION

TECH. BELKIN, ISIDORE.....229 Stockton St., Brooklyn, N. Y.
 1935 COSTELLO, FRANCIS JOSEPH.....2656 Bainbridge Ave., Bronx, N. Y.
 EE D'ELIA, MICHAEL PETER.....1507 St. John's Pl., Brooklyn, N. Y.
 EVANS, LEWIS MONROE.....260 West 44th St., New York, N. Y.
 FISCHLER, ALBERT.....3066 East 5th St., Brooklyn, N. Y.
 FRIEDLAND, NATHAN.....2700 Bronx Park East, New York, N. Y.
 GINSBERG, MORTIMER MARKS.....3-32 150th St., Whitestone, L. I.
 JOHNSON, CHARLES H.....909 — 40th St., Brooklyn, N. Y.
 KENDALL, ROBERT HENRY.....110 Manchester Ave., Paterson, N. J.
 KOSTRIZA, JOHN ARTHUR.....80 Brewster St., Stapleton, S. I., N. Y.
 LEHNING, THOS. CHRISTOPHER.....35-32 — 29th St., Long Island, N. Y.
 LEVITSKY, JOSEPH.....109 Clara St., Brooklyn, N. Y.
 MILUSICH, ALOYSIUS ANTHONY.....24-43 — 32nd St., Astoria, L. I.
 MUNROE, DAVID.....27 Southard Ave., Rockville Centre, N. Y.
 MICHOLZBERG, CHARLES.....914 Eastern Parkway, Brooklyn, N. Y.
 PARTRIDGE, WILLIAM F.....215 West 23rd St., New York, N. Y.
 PETERSON, JOEL DARWIN.....485 West Third Ave., Roselle, N. J.
 REYNOLDS, THOMAS WILLIAM.....326 High St., Passaic, N. Y.
 SEIFRIED, DEAN BARDON.....Main St., New City, N. Y.
 SLAMOVITZ, MORRIS I.....91 Broadway, Paterson, N. J.
 WOLF, CHARLES ANDREW.....166 Stone Ave., Yonkers, N. Y.

ME SECTION

TECH. BAECHER, BERNARD JOSEPH.....90-49 52nd Avenue, Elmhurst, L. I.
 1935 BARRY, ANDREW FRANCIS.....117 Bradford Ave., Rye, N. Y.
 ME BERLIN, ABRAHAM.....5023 Ave. D., Brooklyn, N. Y.
 LEHTI, HENRY JOHN.....2719 Fenton Ave., Bronx, N. Y.
 LEVINE, HARRY DAVID.....1401 — 67th St., Brooklyn, N. J.
 LIPSCHITZ, MAURICE.....726 West Side Ave., Jersey City, N. Y.
 McQUILKIN, JOHN HOWARD.....383 East 198th St., Bronx, N. J.
 PLATTS, HOWARD HORTON.....38 Sylvan St., Rutherford, N. Y.
 SHOOR, SAM.....115 Ave. N., Brooklyn, N. Y.
 STEFANO, NICHOLAS MICHAEL.....46 Franklin Ave., Sea Cliff, N. Y.
 TEDESCO, JOHN THOMAS.....1404 Prospect Ave., New York, N. Y.
 TERRY, GEORGE COOKE.....143-56 Sanford Ave., Flushing, N. Y.
 ZEITZOFF, SAMUEL.....1645 — 64th St., Brooklyn, N. Y.

Fourth Year

ChE SECTION

BIBAUD, ROGER EMERI	2224 Homer Ave., Bronx, N. Y.	TECH.
BRAMWELL, FITZGERALD	7 Glenada Pl., Brooklyn, N.Y.	1934
DUTOT, HENRY EMILE	47-47 — 44th St., Woodside, L. I.	ChE
ENGEL, ALEXANDER	651 West 178th St., New York, N. Y.	
FROMOWITZ, IRVING	367 Powers Ave., New York, N. Y.	
GOLDSTEIN, SAMUEL S.	1849 — 74th St., Brooklyn, N. Y.	
GREEN, LOUIS	578 River St., Paterson, N. J.	
KAPLAN, SAMUEL	206 Lawrence Pl., Paterson, N. J.	
KINKEL, JOHN WILBUR	109-31 205th St., Hollis, L. I., N. Y.	
KITTELMAN, EDWARD JOSEPH	1151 St. Lawrence Ave., Bronx, N. Y.	
KLEBAN, SIDNEY JOSEPH	125 West 72nd St., New York, N. Y.	
LIEBMAN, MORRIS	106 East 51st St., Brooklyn, N. Y.	
PAZ, ALFRED R.	20 St. Marks Pl., New York, N. Y.	
PINSKER, ISRAEL	292 Brook Ave., New York, N. Y.	
SCHWARTZ, SAMUEL	1547 Longfellow Ave., New York, N. Y.	
SIMON, JACK	215 Governor St., Paterson, N. J.	
TOROP, RALPH	1840 Phelan Pl., Bronx, N. Y.	
WAMSER, CHRISTIAN ALBERT	25-86 — 44th St., Long Island City, N. Y.	

CE SECTION

DeBIASE, ANTHONY	535 East 5th St., New York, N. Y.	TECH.
EDWARDS, MARCUS GORDON	520 Hancock St., Brooklyn, N. Y.	1934
GIOVANELLO, PAUL HENRY	9506 Farragut Road, Brooklyn, N. Y.	CE
GRAYMAN, ROBERT	2800 Bronx Park E., New York, N. Y.	
INMAN, CHAS. HORACE	33-29 145th St., Flushing, N. Y.	
KAY, BENJAMIN	800 East 173rd St., Bronx, N. Y.	
LARSON, WARREN EDMUND	9803 — 197 St., Hollis, L. I. N. Y.	
MAGILL, JOSEPH THURSTON	441 Jefferson Ave., Brooklyn, N. Y.	
MOREA, THOMAS ANTHONY	200 East 16th St., New York, N. Y.	
RUBINSKY, MOE ALLEN	2816 West 19th St., Brooklyn, N. Y.	
STEVENS, WILLIAM CONDIT	1850 — 85th St., Brooklyn, N. Y.	

EE SECTION

ABT, CLIFFORD F.	451 Academy St., Astoria, L. I., N. Y.	TECH.
AMATNEEK, KARL	792 East 175th St., New York, N. Y.	1934
BOLLINGER, ARTHUR JOHN	606 New Jersey Ave., Point Pleasant Beach, N. J.	EE
COHEN, MONROE HYMAN	433 East 33rd St., Paterson, N. J.	
DUBLIN, MAX	1647 Park Pl., Brooklyn, N. Y.	
GREENBAUM, MORRIS	1750 Bathgate Ave., Bronx, N. Y.	
ITKIN, KARL	8753 — 26th Ave., Brooklyn, N. Y.	
JANNUZZI, PATSY	627 Bramhall Ave., Jersey City, N. J.	
KIHN, HARRY	98 Grant St., Passaic, N. J.	
KLUG, HARRY A.	2251 Powell Ave., Bronx, N. Y.	
KROPP, CARL HERMAN	117 East 15th St., New York, N. Y.	
LICURSI, VINCENT L.	503 McNeil Ave., Inwood, L. I.	
LIEBLICH, MORRIS	1905 — 75th St., Brooklyn, N. Y.	
LIPSCHITZ, MOSES	4612 — 12th Ave., Brooklyn, N. Y.	
OLIVER, DOUGLAS FORD	9519 — 132nd St., Richmond Hill, N. Y.	
ROSENFELD, AARON	1112 Gerard Ave., Bronx, N. Y.	
RYAN, EDWARD HENRY F.	3118 Snyder Ave., Brooklyn, N. Y.	
SHOTTENFELD, RICHARD	3233 Fulton St., Brooklyn, N. Y.	
SIKOFKY, GEORGE L.	1206 East New York Ave., Brooklyn, N. Y.	
STITELMAN, JOSEPH	201 West 107th St., New York, N. Y.	
TOBOL, GEORGE	1226 Boston Road, Bronx, N. Y.	
WYLIE, RICHARD ARTHUR	7302 Narrows Ave., Brooklyn, N. Y.	

ME SECTION

FALCIOLA, LOUIS JOSEPH	408 — 3rd St., Union City, N. J.	TECH.
GEROW, CHARLES FRANKLIN	531 Craig Ave., Tottenville, S. I., N. Y.	1934
LESLIE, FRANKLIN BREWER	8856 Commonwealth Blvd., Bellerose, L. I., N. Y.	ME
OILL, BENJAMIN CHERR	1294 Grant Ave., Bronx, N. Y.	

NIGHT SCHOOL OF ENGINEERING

First Year SECTION 1

N. ENG.
1939

ADLER, HYMAN AMINODOR	134 Elliot Place, Bronx, N. Y.
ALLISON, HERBERT WILLIAM	304 North Fifth, Harrison, N. J.
AMANN, JOHN WILSON	769 McDonough St., Brooklyn, N. Y.
ARONOWITZ, MAURICE	62 Sheriff St., New York, N. Y.
ATKINS, IRVING	424 Beach 38th St., Edgemere, N. Y.
AUSSENHOFER, FRANK JULIUS	4 West Cooke St., East Rockaway, N. Y.
BALK, LEON JACOB	2440 East 24th St., Brooklyn, N. Y.
BARACK, JACOB	1437 Shakespeare Ave., New York, N. Y.
BARNETT, MAX	333 Sheffield Ave., Brooklyn, N. Y.
BARON, DAVID	607 West 180th St., New York, N. Y.
BARROWS, CHARLES SIDNEY	1730 Harrison Ave., Bronx, N. Y.
BARRY, THOMAS JOSEPH	2707 Briggs Ave., Bronx, N. Y.
BARTELHEIM, GEORGE JOHN	431 East 81st St., New York, N. Y.
BECKER, HAROLD	721 Hopkinson Ave., Brooklyn, N. Y.
BELDY, DANIEL LAWRENCE	2017 Silver St., Ridgewood, N. Y.
BERKOWITZ, HAROLD	8705 Bay Parkway, Brooklyn, N. Y.
BERMAN, ELLIOT	1572 Washington Ave., New York, N. Y.
BERNSTEIN, ELIAS HAROLD	1656 — 47th St., Brooklyn, N. Y.
BIRNBAUM, SAUL ISRAEL	155 South 2nd St., Brooklyn, N. Y.
BLOCK, MEYER	777 Lafayette Ave., Brooklyn, N. Y.
BRADY, JAMES VINCENT	3980 Provost Ave., Bronx, N. Y.
BRICCHI, HUGO	518 Paterson Plank Road, Jersey City, N. J.
BROWN, MARTIN MAXWELL	1811 East 16th St., Brooklyn, N. Y.
BUCCIARELLI, THOMAS JOHN	9 Fulton Ave., Hudson Heights, N. J.
BUCHENBAUM, MORRIS	247 Clinton St., New York, N. Y.
BUDDLE, ALBERT ANTHONY	2548 Matthews Ave., Bronx, N. Y.
BURCH, ROBERT	2105 Blackrock Ave., c/o A. Pederson, New York, N. Y.
CHARNEY, WILLIAM	3821 Atlantic Ave., Sea Gate, Brooklyn, N. Y.
CLARK, LAWRENCE FREDERICK	215-15 — 38th Ave., Bayside, N. Y.
CLEMENTI, GUIDO REMO	338 State St., Brooklyn, N. Y.
FRANK, BERNARD HERMAN	161 Kosciusko St., Brooklyn, N. Y.
GELMAN, MURRAY C.	104 Lewis St., New York, N. Y.
GOULD, MILTON LESTER	515 Avenue O, Brooklyn, N. Y.
HOCHSTEIN, CHARLES	1321 Franklin Ave., New York, N. Y.
KALFAIAN, EDWARD H.	1 Underwood Place, Jersey City, N. J.
SPARR, ANTON EDWARD	998 Longwood Ave., New York, N. Y.
VREELAND, WM. GEORGE	1647 West 11th St., Brooklyn, N. Y.
WILENSKY, JOSEPH NATHAN	427-29 Atkins Ave., Brooklyn, N. Y.

SECTION 2

N. ENG.
1939

COLEMAN, CHARLES EDWARD	598 Kosciusko St., Brooklyn, N. Y.
CONKLIN, ARTHUR FRANCIS	131 Grace St., Jersey City, N. J.
CONLEY, JOSEPH TURNER	1038 Union St., Brooklyn, N. Y.
COPPOLINO, LOUIS JOSEPH	6901 — 16th Ave., Brooklyn, N. J.
CZANDER, JOSEPH	565 Palisade Ave., Jersey City, N. Y.
DANNER, ALFRED EMIL	415 East 157th St., Bronx, N. Y.
DECKER, WILLIAM EDMOND	24 Markham Pl., West New Brighton, N. Y.
DIAMOND, GILBERT	337 Glenmore Ave., Brooklyn, N. Y.
DIAMOND, ISIDORE	177 Powell St., Brooklyn, N. Y.
DISCEPOLI, FRED	157 East 108th St., New York, N. Y.
DOBLER, VICTOR WILLIAM HOWARD	278 Bradley Ave., Staten Island, N. J.
DRAVESKY, ANDREW JOSEPH	76 Avenue C, Bayonne, N. Y.
DRECHSLER, FREDERICK PHILIP	647 West 172nd St., New York, N. Y.
DUBAC, CONSTANTINO	95 Gelston Ave., Brooklyn, N. Y.
DUBERSTEIN, MAX	995 East 173rd St., New York, N. Y.
DWORKOWITZ, MILTON	240 East 4th St., New York, N. J.
DWOSKIN, JACOB	16 Highland Place, West New York, N. Y.
ECKSTEIN, BERTRAM	207 Graham Ave., Brooklyn, N. Y.
EINENKEL, HERBERT SHERMAN	60-56 — 68th Road, Ridgewood, L. I., N. Y.
EISENSTADT, HAROLD	227 Haven Ave., New York, N. Y.
EISENSTARK, MILTON	741 East 179th St., Bronx, N. Y.

ENGEL, JEROME	2a Foxall St., Ridgewood, L. I., N. Y.
ESNER, SEYMOUR LION	488a Seventh Ave., Brooklyn, N. Y.
EVANS, SIDNEY JOHNSON	54 Caroline St., Staten Island, N. Y.
EVERMAN, VICTOR FREDERICK	391 Bradford St., Brooklyn, N. Y.
FARRELL, WILLIAM A.	5041 — 47th St., Woodside, L. I.
FELDMAN, KENNETH	92 East 33rd St., Paterson, N. J.
FISCHER, JOHN WILLIAM	440 East Ninth St., Brooklyn, N. Y.
FITZPATRICK, WILLIAM JOSEPH	94-04 — 50th Ave., Elmhurst, N. Y.
FLECK, BERNARD ARNOLD	125 Ramsey Ave., Yonkers, N. Y.
FRANKENSTEIN, GEORGE	2090 Pitkin Ave., Brooklyn, N. Y.
FRASCELLA, THOMAS JOHN	779 Livonia Ave., Brooklyn, N. Y.
HARRIS, FREDERIC HERSCHEL	167 Linden Ave., Belleville, N. J.
HARRIS, GILBERT	208 Neptune Ave., Brooklyn, N. Y.
LANGFELDER, RICHARD JOHN	P. O. Box 192, Passaic, N. J.
MARCUS, ABRAHAM JOSEPH	1050 Newport St., Brooklyn, N. Y.
OSCIAC, GEORGE	336 — 44th St., Brooklyn, N. Y.

SECTION 3

COHEN, CELIA	393 Williams Ave., Brooklyn, N. Y.
DREW, THOMAS PATRICK	80 West 169th St., New York, N. Y.
FRISTENSKY, CHARLES ARTHUR	282 Shaler Blvd., Ridgefield, N. J.
FUERST, BERNARD	19-21 Lewis Ave., Brooklyn, N. Y.
GEISLER, JOHN GEORGE	114 Suffolk Rd., Island Park, L. I., N. Y.
GIRNIUS, JOSEPH STEPHEN	95-09 Woodhaven Ct., Ozone Park, L. I., N. Y.
GLICKMAN, CYRIL GEORGE	3720 Maple Ave., Sea Gate, Brooklyn, N. Y.
GOLDBERG, ROBERT	2950 West 24th St., Brooklyn, N. Y.
GORDON, MAX	2014 — 61st St., Brooklyn, N. Y.
GOTTLIEB, AARON	1139 Blake Ave., Brooklyn, N. Y.
GOVERTSEN, WALTER	822 — 58th St., Brooklyn, N. Y.
GREENHUT, ARTHUR	1944 — 63rd St., Brooklyn, N. Y.
GRITZNER, HARRY	397 Prospect Ave., Brooklyn, N. Y.
HAGERTY, PHILIP EDWIN	514 East 8th St., Brooklyn, N. Y.
HARDING, JACK	Camp Warren, South Beach, S. I., N. Y.
HASSELBACH, ALFRED THOMAS	631 — 88th St., Brooklyn, N. Y.
HAUCK, CHARLES ADAM	8838 — 87th St., Woodhaven, N. Y.
HEFELE, LOUIS JAMES	2476 Elm Pl., Fordham, N. Y. C.
HEWITT, WILLIAM HENRY	1914 Avenue Y, Brooklyn, N. Y.
HOBAN, FRANCIS RAYMOND	3754 — 93rd St., Jackson Heights, L. I., N. Y.
HOMMES, WALTER	137 East 19th St., Paterson, N. J.
HORN, SAMUEL LOUIS	1425 Macombs Rd., Bronx, N. Y.
JAUDON, ELBERT WALTER	159-52 — 98th St., Howard Beach, N. Y.
JOHNSON, WILLIAM ALBERT	367 Halsey St., Brooklyn, N. Y.
JOSEPH, WILLIAM	1728 — 43rd St., Brooklyn, N. Y.
KEISERMAN, DAVID	1888 Bathgate Ave., New York, N. Y.
KENT, GEORGE	317 Sylvan Ave., Leonia, N. J.
KESSLER, HARRY	2007 Davidson Ave., New York, N. Y.
KIRSCHEN, MAX	1883 Southern Blvd., Bronx, N. Y.
KITT, ROBERT I.	683 East 133rd St., Bronx, N. Y.
KNOBLOCK, KENNETH	33-54 — 99th St., Corona, L. I., N. Y.
KOGELMAN, SEYMOUR	3881 Sedgwick Ave., Bronx, N. Y.
KOHLER, EDWARD AUGUST	367 East 155th St., New York, N. Y.
KOHN, JULIUS F.	154 East 3rd St., New York, N. Y.
LOEFFLER, CHAS. NEYLAN	340 East 31st St., Brooklyn, N. Y.
MITCHELL, HERBERT IRA	750 Hewitt Pl., Bronx, N. Y.
SOLIVAN, EDUARDO	18 East 111th St., New York, N. Y.

N. ENG.
1939

SECTION 4

FISCHER, ELLIOTT FRANCIS	649 East 223rd St., Bronx, N. Y.
GERHARD, MARTIN KARL	508 Broad Ave., Ridgefield, N. J.
GUMLEY, ROBERT HUGH	1062 Union Ave., Bronx, N. Y.
KOLINER, RALPH	250 Stockton St., Brooklyn, N. Y.
KROLL, BENJAMIN	566 Essex St., Brooklyn, N. Y.
KSAYIAN, GEORGE	1391 Flatbush Ave., Brooklyn, N. Y.
KUNYSZ, PAUL	718 Main St., Paterson, N. J.
KUSEVICH, MARKO ANTON	28-32 Christopher Ave., Brooklyn, N. Y.
LAIMOS, SOCRATES ADAM	253 East 10th St., New York, N. Y.

N. ENG.
1939

LAITMAN, MILTON A.	76 Heyward St., Brooklyn, N. Y.
LARKIN, JOSEPH PATRICK	446 East 139th St., New York, N. Y.
LEFKOWITZ, LEONARD H.	1834 — 55th St., Brooklyn, N. Y.
LEHRMAN, PHILIP	786 East 182nd St., New York, N. Y.
LEVINE, ARCHIE MILTON	315 Powell St., Brooklyn, N. Y.
LEVINE, LESTER	2180 Wallace Ave., Bronx, N. Y.
LEVINE, SAUL CHARLES	3064 Albany Crescent, New York, N. Y.
LEVINSON, BENJAMIN	389 Watkins St., Brooklyn, N. Y.
LEWSON, MARTIN	232 East 201st St., New York, N. Y.
LICHTENBERG, BAZIL ISAAC	1950 East 38th St., Brooklyn, N. Y.
LINDNER, ERNEST JOHN	322 East 79th St., New York, N. Y.
LUTHER, HERBERT GEORGE	631 Hancock St., Brooklyn, N. Y.
MAHONY, DANIEL L.	280 Riverdale Ave., Yonkers, N. Y.
MANS, ALBERT THOMAS	85 Jordan Ave., Jersey City, N. J.
MARCHETTI, JOSEPH	236 Stanhope St., Brooklyn, N. Y.
MARINO, LOUIS CHARLES	315 Clinton St., Brooklyn, N. Y.
MARTONE, ARTHUR RANDOLPH	96 Van Houten Ave., Passaic, N. J.
MATICH, JOHN G.	906 Willow Ave., Hoboken, N. J.
McKENNA, JAMES THOMAS	250 West 21st St., New York, N. Y.
McLAUGHLIN, DANIEL EVERETT	230 Clarendon Rd., Brooklyn, N. Y.
MERINGER, WILLIAM JOHN	2847 Webb Ave., Bronx, N. Y.
MEYER, WILLIAM F.	35 Montgomery St., Bloomfield, N. J.
MIDDLETON, JOHN FRANCIS	381 East 160th St., Bronx, N. Y.
NATHANSON, ALBERT	1852 West 4th St., Brooklyn, N. Y.
PALMER, HARRY W.	2515 Grand Concourse, New York, N. Y.
WEISER, TED	66 Pitt St., New York, N. Y.
WEITZ, SIDNEY S.	537 Sheffield Ave., Brooklyn, N. Y.
WINER, BURTON GARRETT	92-07 — 215th Pl., Queens Village, L. I.
ZUCKERMAN, MORRIS	2024 Honeywell Ave., Bronx, N. Y.

SECTION 5

N. ENG.	BARANOFF, MICHAEL	450 Throop Ave., Brooklyn, N. Y.
1939	BETTE, GERARD JOSEPH	1820 Parkview Ave., Bronx, N. Y.
	KLEIN, WM.	1357 Southern Blvd., New York, N. Y.
	MILLER, HYMAN	3894 Park Ave., Bronx, N. Y.
	MILLER, LEON MEYER	2800 Bronx Park East, New York, N. Y.
	MORTON, NATHANIEL BEN	417 East 12th St., New York, N. Y.
	MOSKOWITZ, IRVING HERMAN	1053 — 50th St., Brooklyn, N. Y.
	NAGIN, WILLIAM	1916 — 71st St., Brooklyn, N. Y.
	NELSON, C. RAYMOND	201 Tyson Ave., Floral Park, N. Y.
	NEWMAN, DONALD M.	Box 222 R. D. no. 1, Belmar, N. J.
	NILSON, FRANK	197 — 2nd Ave., New York, N. Y.
	NOOGER, LAZARUS	2810 Olinville Ave., New York, N. Y.
	NUREMBURG, GEORGE HAROLD	511 — 82nd St., Brooklyn, N. Y.
	NYITRAY, JOSEPH ANDREW	2649 — 96th St., Jackson Heights, N. Y.
	OSSI, ALBERT	39 Florence Pl., East Paterson, N. J.
	PACKER, ALBERT	251 Beach 80th St., Rockaway Beach, N. Y.
	PANCOSOFAR, ERNEST	79 Van Winkle Ave., Jersey City, N. J.
	PANSINI, PATRICK MICHAEL	1649 West 5th St., Brooklyn, N. Y.
	PATTERSON, JAMES CLYDE	55 Hanson Pl., Brooklyn, N. Y.
	PEPKOWITZ, LEONARD PAUL	315 Pennington Ave., Passaic, N. J.
	PETERSON, BERTIL ALBIN	3169 — 37th St., Astoria, L. I., N. Y.
	PFLUG, WERNER	648 Boulevard East, Weehawken, N. Y.
	PHILLIPS, STEVE	116 Seventh St., New York, N. Y.
	PIVA, CHESTER LAWRENCE	300 East 88th St., New York, N. Y.
	POOLE, ARTHUR JOHN	34 East 28th St., Bayonne, N. J.
	POVEROMO, PETER P.	633 St. Anns Ave., Bronx, N. Y.
	QUIST, Jr., ANDREW HAROLD	1400 Flatbush Ave., Brooklyn, N. Y.
	RABINOWITZ, SAM PAUL	570 Willoughby Ave., Brooklyn, N. Y.
	RADER, EVERETT	2117 — 76th St., Brooklyn, N. Y.
	REMY, VALENTINE JOSEPH	392 — 3rd St., Brooklyn, N. Y.
	RENDANO, LOUIS NICHOLAS	20 Luqueer St., Brooklyn, N. Y.
	RETZKER, LEONARD IRVING	1654 East 15th St., Brooklyn, N. J.
	SIROIS, BENOIT JOSEPH	28 — 6th St., Elizabeth, N. Y.
	WEISS, MAX	1843 — 62nd St., Brooklyn, N. Y.

SECTION 6

BURGER, EDWARD HAROLD	6809 Owl's Head Court, Brooklyn, N. Y.
CAIOLA, RICHARD J.	25-23 — 34th St., Long Island City, N. Y.
CAPASSO, MICHAEL V.	282 St. Mary's Ave., Rosebank, S. I.
COLLETTI, PAUL CHARLES	1838 Decatur Ave., Ridgewood, L. I., N. Y.
DeANGELIS, ARTHUR	502 East 189th St., Bronx, N. Y.
HAMMEL, ARTHUR SAMUEL	1161 Sherman Ave., Bronx, N. Y.
JENSEN, CHRISTIAN THEO.	Box No. 350, Y. M. C. A., Passaic, N. J.
KOOMANOFF, THEODORE ALEXANDER	188 West 101st St., New York, N. Y.
KORWASKY, JOSEPH	403 East 22nd St., New York, N. Y.
ROSEN, HARRY	1281 — 39th St., Brooklyn, N. Y.
ROSZKOWSKI, EDMUND SIMON	147-51 Ferndale Ave., Jamaica, N. Y.
ROXBURGH, EDWARD DAY	148 Stuyvesant Ave., Brooklyn, N. Y.
RUBIN, HAROLD L.	154 East 39th St., Brooklyn, N. Y.
RUSLANDER, ISIDORE	64 Suffolk St., New York, N. Y.
SALZBERG, LEO FELIX	969 Simpson St., Bronx, N. Y.
SANTANNA, JAMES JOSEPH	58-19 — 60th Lane, Maspeth, L. I., N. Y.
SARCH, SAMUEL	1561 West 6th St., Brooklyn, N. Y.
SAVACCHIO, ANTONIO NICHOLAS	441 East 116th St., New York, N. Y.
SCHEUFELE, CHARLES FRED	839 East 156th St., New York, N. Y.
SCHINDLER, OTTO L. J.	439 East 71st St., New York, N. Y.
SCHMITZ, FRED WILLIAM	1868 Madison St., Brooklyn, N. Y.
SCHNEIDER, HENRY WILLIAM	580 East 164th St., New York, N. Y.
SCHUMANN, WILLIAM CARL	536 — 34th St., Woodcliff, N. J.
SCHWIEK, ABE	118 North 14th St., Paterson, N. J.
SHAGALOFF, BEN BENDET	1804 Longfellow Ave., Bronx, N. Y.
SHAPIRO, LEO	89 Seigel St., Brooklyn, N. Y.
SIESHOLTZ, HERBERT WILLIAM	142 Goldsmith Ave., Newark, N. J.
SIMEONE, RALPH	548 Clinton St., Brooklyn, N. Y.
SOBEL, BERNARD ALBERT	1766 Park Place, Brooklyn, N. Y.
SOMSON, ALFRED SPENCER	1789 Davidson Ave., New York, N. Y.
SONBERG, HYMAN A.	175 Arnod Court, Brooklyn, N. Y.
STARR, ROBERT BUTLER	311 East 27th St., New York, N. Y.
STERN, I. GERALD	2024 — 78th St., Brooklyn, N. Y.

N. ENG.
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SECTION 7

BAHRENBURG, HERBERT ALVIN	155 Monroe St., Brooklyn, N. Y.
BANK, HYMAN	287 Pulaski St., Brooklyn, N. Y.
DALTON, WALTER ALOYSIUS	401 Vernon Ave., Long Island City, N. Y.
EPSELL, MAX	666 Warwick St., Brooklyn, N. Y.
GREENSPAN, SAMUEL	212 Forsyth St., New York, N. Y.
HUTTON, Jr., HENRY HERBERT	146 Highview Ave., New Brighton, S. I., N. Y.
KUHNBAUM, GEORGE W.	591 East 135th St., New York, N. Y.
PHILLIPS, JAMES WILLIAM	10333 — 103rd St., Ozone Park, L. I.
SANSEVERO, VINCENT JOSEPH	945 St. Nicholas Ave., New York, N. Y.
SCHOENBERG, HILTON	2451 — 65th St., Brooklyn, N. Y.
SKLAR, ALEXANDER	2841 West 37th St., Coney Island, N. Y.
STECKLER, HARRY	947 Montgomery St., Brooklyn, N. Y.
STEVENS, DAVID FRANCIS	65 Romaine Ave., Jersey City, N. J.
STROM, ALBERT WILLIAM	1219 St. Lawrence Ave., Bronx, N. Y.
SWIDERSKI, PETER J.	61 North 6th St., Brooklyn, N. Y.
TARZANIN, THERESA	827 Greene Ave., Brooklyn, N. Y.
TAYLOR, ISADORE	22 West 100th St., New York, N. Y.
TEGETHOFF, J. E.	531 Ovington Ave., Brooklyn, N. Y.
TOBIAS, LEO	1105 Elder Ave., New York, N. Y.
TRAYNER, THOMAS JOSEPH	196 East 32nd St., Brooklyn, N. Y.
TSCHUPP, MICHAEL ANTHONY	291 Devoe St., Brooklyn, N. Y.
TUFEL, MAX HARRY	2140 Cruger Ave., New York, N. Y.
VANEK, FRANK	67-33 52nd Ave., Maspeth, L. I., N. Y.
VESTIGO, PAUL WILLIAM	105-57 130 St., Richmond Hill, N. Y.
VOLK, JACOB	159 Ellery St., Brooklyn, N. Y.
WACHOLDER, BENJAMIN	285 Pulaski St., Brooklyn, N. Y.
WALICKI, JULIUS JOSEPH	529 East 147th St., Bronx, N. Y.
WASSERMAN, WALTER M.	850 East 181st St., New York, N. Y.
WEBER, HENRY PAUL	576 West 183rd St., New York, N. Y.

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1939

WEBER, JOSEPH	108-110 East 111th St., New York, N. Y.
WEBSTER, WILLIAM FREDERICK	3001 Ave. I., Brooklyn, N. Y.
WEICHBROD, JOSEPH	570 Williams Ave., Brooklyn, N. Y.
WEXLER, AUGUST	6015 — 23rd Ave., Brooklyn, N. Y.
WHEELER, Jr., ARTHUR	82 St. Andrews Pl., Yonkers, N. Y.
WIESENDANGER, ROBERT	28 Caryl Ave., Yonkers, N. Y.
WILDMAN, MORRIS	1936 East 8th St., Brooklyn, N. Y.
WOEBCKE, HERMAN NICHOLAS	608 West 204th St., New York, N. Y.
WOLEJSIO, WILHELM STANISLAUS	10-43 44th Drive, Long Island City, N. Y.
WOLFF, HERBERT	502 New Lots Ave., Brooklyn, N. Y.
WUORINEN, WALTER KUSTAA	104-30 Globe Ave., Jamaica, N. Y.
ZWIRN, SIDNEY	2767 West 5th St., Brooklyn, N. Y.

Second Year SECTION 1

N. ENG. 1938	ALBRECHT, FRANK WILLIAM	77 Glover Ave., Yonkers, N. Y.
	ATHEY, MATTHEW JUDSON	4741 — 39th Pl., Long Island City, N. Y.
	BARKER, JOSEPH GERARD	63-54 Fresh Pond St., Ridgewood, Brooklyn, N. Y.
	BARRETT, BERNARD	37 Avon Pl., Staten Island, N. Y.
	BATEMAN, JOHN FRANKLIN	320 Fairmount Ave., Jersey City, N. J.
	BAUMGART, WALTER ARTHUR	258 Stanley Ave., Staten Island, N. Y.
	BRADY, FRANCIS THOMAS	444 East 87th St., New York, N. Y.
	BREHM, HAROLD B.	33 Monticello Ave., Jersey City, N. J.
	BROAD, WALTER CHARLES	94 East 44th St., Bayonne, N. J.
	BRUCKENTHAL, MORRIS	60 East 3rd St., New York, N. Y.
	BRUSHANSKY, ROY	81 Blake Ave., Brooklyn, N. Y.
	BURKE, ARTHUR WALTER	502 West 177th St., New York, N. Y.
	CARR, ROBERT WAYNE	142 Glenwood Road, Elizabeth, N. J.
	CASO, JACK SALVATORE	7 Smith St., Perth Amboy, N. J.
	CHARNICK, MILTON	1501 Boston Road, New York, N. Y.
	CHICHESTER, KENNETH JAMES	25-18 12th St., Astoria, L. I.
	CIASCA, NICHOLAS R.	33-23 99th St., Corona, N. Y.
	COHEN, LEO NATHAN	560 Beck St., Bronx, N. Y.
	SVERDLIK, ISRAEL	144-32 Liberty Ave., Jamaica, N. Y.

SECTION 2

N. ENG. 1938	COHEN, SYDNEY FREDERICK	2855 West 30th St., Brooklyn, N. Y.
	DEL PAPA, FRANK	2336 — 64th St., Brooklyn, N. Y.
	EBENSTEIN, LEONARD	995 East 181st St., Bronx, N. Y.
	EDELMAN, CHARLES SEYMOUR	Y.M.H.A., 92nd St. & Lexington Ave., N. Y. C.
	ESTEN, LOUIS	2100 Westbury Court, Brooklyn, N. Y.
	EZELL, EDWARD J.	299 Fairmount Ave., Jersey City, N. J.
	FEINSTEIN, SOL	350 East 166th St., New York, N. Y.
	FISCHER, WALTER FREDERIC	110 Bennett Ave., Yonkers, N. Y.
	FITZGERALD, GEORGE VINCENT	699 Chauncey St., Brooklyn, N. Y.
	FRANZ, HENRY WILLIAM	139-04 90th Ave., Jamaica, N. Y.
	GARNER, FRANK ROBERT	350 Weirfield St., Brooklyn, N. Y.
	GERTLER, JAMES	1821 Davidson Ave., New York, N. Y.
	GIGANTE, MARIO	5 East 101st St., New York, N. Y.
	GOLZ, SAM	236 — 14th St., West New York, N. Y.
	GREEN, WILLIAM FRANK	2108 East 7th St., Brooklyn, N. J.
	GREENBERG, ABE	21 East 40th St., Bayonne, N. J.
	GREENBERG, JOSEPH SOLOMON	107 Wayne St., Jersey City, N. Y.
	GREENFIELD, CHARLES	5102 — 11th Ave., Brooklyn, N. Y.
	GROSS, JACK S.	4703 New Utrecht Ave., Brooklyn, N. Y.
	GROSS, SAMUEL CHARLES	326 East 58th St., New York, N. Y.
	GUMBRECHT, JOHN OEHLERS	162-22 78th Ave., Flushing, L. I.
	GUZZARDI, SAM	1831 — 55th St., Brooklyn, N. Y.
	HABERMAN, MILTON ARTHUR	710 East 235th St., New York, N. J.
	WALSH, EDWARD JAMES	64 Linden Ave., Jersey City, N. Y.
	WOHLGEMUTH, ADOLPH JULIUS	1151 East 165th St., Bronx, N. Y.

SECTION 3

N. ENG. 1938	ATTARDI, JOHN JOSEPH	339 East 12th St., New York, N. Y.
	HAAR, HENRY	1862 West 4th St., Brooklyn, N. Y.
	HALDENWANG, JOHN CONRAD	59-15 Woodbine St., Ridgewood, L. I., N. Y.

HEISER, WALTER TEWES.....	170-05 118 Road, Jamaica, N. Y.
HELLER, SAMUEL.....	323 West 23rd St., New York, N. Y.
HILL, GILBERT FRANCIS.....	562 Hillside St., Ridgefield, N. J.
HOCKENJOS, ROBERT MATTHEW.....	400 Mosholu Parkway, Bronx, N. Y.
HOLLINGSWORTH, LESTER P.....	199 Cleveland St., Brooklyn, N. Y.
HORNICKEL, HERMAN CONRAD.....	2418 Tratman Ave., Bronx, N. Y.
HOROWITZ, JACOB DAVID.....	215 East 54th St., Brooklyn, N. Y.
JAHRLING, ROBERT JACOB.....	772 — 9th Ave., New York, N. Y.
JONKE, JOSEPH.....	864 East 35th St., Brooklyn, N. Y.
KANE, BERTRAM JAMES.....	208 Gelston Ave., Brooklyn, N. Y.
KANE, H. ARTHUR.....	16 Norwood Ave., Glen Rock, N. J.
KATZ, RUTH D.....	1115 College Ave., Bronx, N. Y.
KAUFMAN, WILBUR LAURENCE.....	71 Vermilyea Ave., New York, N. Y.
KEAVENY, THOMAS PATRICK.....	438 West 58th St., New York, N. Y.
KERTESZ, CARL.....	22-21 24th St., Long Island City, N. Y.
KETTLEMAN, EFFINGHAM V. B.....	6426 — 65th Lane, Maspeth, N. Y.
KNIAZUK, MICHAEL.....	614 Franklin St., Elizabeth, N. J.
KORETSKY, SANFORD.....	1831 Marmion Ave., Bronx, N. Y.
KOZLOWSKI, JOHN JOSEPH.....	132 Steuben St., Jersey City, N. J.
WHITE, FREDERICK EUGENE.....	3119 — 103rd St., Corona, N. Y.

SECTION 4

KROATSHUNOK, JOHN.....	238 Ave. A., New York, N. Y.
KUZMICK, JEROME.....	13 Holden St., Clifton, N. J.
LEMCHEN, PHILIP.....	768 Boulevard, Bayonne, N. J.
LESSERSOHN, HAROLD.....	916 Stebbins Ave., Bronx, N. Y.
LEVADA, ANDREW ROBERT.....	3318 — 97th St., Corona, L. I.
LIEBER, JOSEPH ALPHONSE.....	8049 — 88th Road, Woodhaven, L. I.
LIPOWITZ, NATHAN SAMUEL.....	590 — 20th Ave., Paterson, N. J.
LUBCKER, HAROLD KENNETH.....	2435 Frisby Ave., New York, N. Y.
LUHRS, CHARLES HENRY.....	979 Grace Terrace, Teaneck, N. J.
MacWHORTER, SAM B.....	411 Applegate Court, Brooklyn, N. Y.
McALEER, JAMES JOSEPH.....	70 East 123rd St., New York, N. Y.
MICHAELSON, JOSEPH E.....	3508 — 91st St., Jackson Heights, L. I.
MILLER, CHARLES F.....	4315 Grace Ave., Bronx, N. Y.
MORRISSEY, JOHN JOSEPH.....	961 — 53rd St., Brooklyn, N. Y.
MUHLSTEFF, FREDERICK G.....	100 West 105th St., New York, N. Y.
NELSON, HENRY MARTIN.....	1946 Amsterdam Ave., New York, N. Y.
NOSS, ALFRED B.....	718 Schenectady Ave., Brooklyn, N. Y.
OATS, HARRY DUNCAN.....	99 Vincent Pl., Lynbrook, L. I.
OESTREICHER, WILLIAM STANLEY.....	1134 Stratford Ave., Bronx, N. Y.
OETTING, ARTHUR FREDERICK.....	1670 East 49th St., Brooklyn, N. Y.
OLDHAM, RICHARD DELAPIERRE.....	119 Second Ave., Westwood, N. J.
OWENDOFF, ROBERT ALBERT.....	474 — 72nd St., Brooklyn, N. Y.
PAUL, EMIL E.....	36-08 29th St., Astoria, L. I.
PERLSTEIN, S. LEO.....	7024 — 17th Ave., Brooklyn, N. Y.
PHILLIPS, GEORGE MELVILLE.....	145 Columbia Ave., North Bergen, N. J.
PINTO, ANTHONY.....	1725 — 70th St., Brooklyn, N. Y.

N. ENG.
1938

SECTION 5

CUPPLES, JOSEPH GERARD.....	136 — 16th St., Brooklyn, N. Y.
DOLGOW, MORRIS.....	138 Ludlow St., New York, N. Y.
PLAUT, ISIDORE IRVING.....	1700 Bryant Ave., Bronx, N. Y.
POOCK, WALTER.....	53 Park Pl., Brooklyn, N. Y.
PREVITI, ROSARIO.....	3732 — 64th St., Woodside, L. I.
RABOY, CHARLOTTE.....	1724 — 48th St., Brooklyn, N. Y.
RECK, CHARLES WILLIAM.....	1806 Vyse Ave., Bronx, N. Y.
REICH, SIDNEY.....	450 Ocean Parkway, Brooklyn, N. Y.
ROEBER, WILLIAM JAMES.....	410 West 51st St., New York, N. Y.
ROISTACHER, LESTER D.....	7005 — 19th Ave., Brooklyn, N. Y.
RUDAHL, ARNOLD EDWARD.....	408 North 10th St., Fairview, N. J.
SAPERSTEIN, SOL.....	1325 Lafayette Ave., New York, N. Y.
SCHIEREN, JACOB.....	310 East 4th St., New York, N. Y.
SCHLANGER, JULIAN LEON.....	166 West 87th St., New York, N. Y.
SCHMUTZLER, ALFRED F.....	153-25 41st Ave., Flushing, N. Y.
SHENKER, SOL.....	837 — 47th St., Brooklyn, N. Y.

N. ENG.
1938

SHISKOW, ALEXANDER.....	393 Cator Ave., Jersey City, N. J.
SHUMSKY, PHILLIP.....	796 Howard Ave., Brooklyn, N. Y.
SIGMAN, SAM.....	109 Goerick St., New York, N. Y.
SILVERMAN, MILTON.....	30 Herzl St., Brooklyn, N. Y.
SLAUER, ARTHUR EDWARD.....	16 Cottage St., Jersey City, N. J.
SOLKOFF, EPHRAIM.....	68 Central Ave., Jersey City, N. J.
SONBERG, HAROLD R.....	1166 West Farms Road, New York, N. Y.
TURNER, EDWARD HENDERSON.....	7612 — 11th Ave., Brooklyn, N. Y.

SECTION 6

N. ENG.	ADAMS, JOHN CHARLES.....	64 Linden Ave., Jersey City, N. J.
1938	SPICE, ROBERT.....	Westwood, N. J.
	STAUSS, BERNHARD.....	200 New York Ave., Union City, N. J.
	STERNBERG, ISIDORE MAURICE.....	1004 Union St., Brooklyn, N. Y.
	STIMPSON, JOHN WESLEY.....	8754 — 24th Ave., Brooklyn, N. Y.
	STROLLO, EMIL THOMAS.....	9530 — 125th St., Richmond Hill, N. Y.
	SWISHER, JEROME VINCENT.....	745 Knickerbocker Ave., Brooklyn, N. Y.
	TEMPLE, HARRY.....	2682 Creston Ave., New York, N. Y.
	TOBEY, LOUIS ARNOLD.....	3044 — 34 St., Astoria, L. I.
	TROEGLER, HENRY.....	1201 Washington St., Hoboken, N. J.
	ULSHEN, LAWRENCE FREDERICK.....	558 West 149th St., New York, N. Y.
	WANDEL, CHARLES R.....	9611 — 133 Ave., Ozone Park, N. Y.
	WEIPERT, JOHN JENO.....	469 East 147th St., New York, N. Y.
	WEISMAN, CHARLES.....	1250 Grand Concourse, New York, N. Y.
	WELLING, MORRIS.....	496 East 95th St., Brooklyn, N. Y.
	WENSON, Jr., HENRY WILLIAM.....	37-19 Twelfth St., Long Island City, N. Y.
	WILHELMY, FRED WILLIAM.....	117 Thirty-Fourth St., Union City, N. J.

Third Year

CE & ME SECTION 1

N. ENG.	ACKERT, GEORGE FORD.....	35-28 34th Street, Long Island City, N. Y.
1936	ADAMS, HORTON KNIGHT.....	4810 Osgood St., Bronx, N. Y.
CE	ALVY, DANIEL N.....	972 Simpson St., Bronx, N. Y.
ME	ANSELMO, THEODORE.....	23-49 36th St., Long Island City, N. Y.
	BEGELMAN, CHARLES S.....	615 Kosciusko St., Brooklyn, N. Y.
	BLASS, EDWARD JOSEPH.....	721 56th St., Brooklyn, N. Y.
	BOTTA, ANGELO.....	411 West 44th St., New York, N. Y.
	CASPERSSON, STEN ANDERS.....	535 Dean St., Brooklyn, N. Y.
	COHEN, HYMAN I.....	1018 Hoe Ave., Bronx, N. Y.
	COONAN, LAWRENCE BERNARD.....	3879 Flatlands Ave., Brooklyn, N. Y.
	DE MAIO, JOSEPH JOHN.....	14 Arion Pl., Brooklyn, N. Y.
	DRISCOLL, TIMOTHY JOHN.....	217 Benziger Ave., New Brighton, S. I.
	EICHENBAUM, LEOPOLD.....	531 Greene Ave., Brooklyn, N. Y.
	FAMOSO, JOSEPH.....	544 — 61st St., Brooklyn, N. Y.
	FINK, MILTON.....	1224 Walton Ave., New York, N. Y.
	FISCELLA, FRANK.....	1409 Leland Ave., Bronx, N. Y.
	GANGI, SALVATORE ROBERT.....	63 Stone Ave., Brooklyn, N. Y.
	GIBBONS, WILLIAM JOSEPH.....	129 Schermerhorn St., Brooklyn, N. Y.
	GINESIN, SAMUEL.....	518 Hopkinson Ave., Brooklyn, N. Y.
	GUNKEL, ROBERT ERNEST.....	1222 Rogers Ave., Brooklyn, N. Y.
	HERDMAN, ALBERT.....	470 West 166th St., New York, N. J.
	HORESTA, STEPHEN GEORGE.....	225 4th St., Passaic, N. J.
	HORNBY, LEWIS ALFRED.....	31 Belmont Ave., Jersey City, N. J.
	HOROWITZ, BERNARD.....	1723 West 5th St., Brooklyn, N. Y.
	KAHLENBERG, ARTHUR.....	7017 19th Ave., Brooklyn, S. I.
	KORN, NORMAN LOUIS.....	529 Forest Ave., West New Brighton, N. Y.
	LINSKY, DAVID JOSEPH.....	1135 — 54th St., Brooklyn, N. Y.
	LIPMAN, ARTHUR LIONEL.....	285 West 261st St., New York, N. Y.

CE & ME—SECTION 2

N. ENG.	BOLLMAN, LESLIE W.....	22-58 48th St., Long Island City, N. Y.
1936	BRENNER, HENRY.....	14 Monroe St., Mount Vernon, N. Y.
CE	BRUSHANSKY, ABRAHAM.....	81 Blake Ave., Brooklyn, N. Y.
ME	FLYNN, JOHN THOMAS.....	352 West 110th St., New York, N. Y.
	HILLER, EDGAR P.....	159 West 103rd St., New York, N. Y.

KAZAZIAN, LEO CHARLES	Maple Ave., Basking Ridge, N. J.
KLIGFIELD, GEORGE	482 Herzl St., Brooklyn, N. Y.
KOPLOWITZ, NIOVIS	2338 — 82nd St., Brooklyn, N. Y.
KRUEGER, Jr., PAUL C.	2107 Tomlinson Ave., Bronx, N. Y.
KUGELMAS, HARRY	122 St. Marks Pl., New York, N. Y.
LANDIN, ARTHUR DAVID	149 West Tremont Ave., New York, N. Y.
LINDHEIMER, WERNER	309 East 85th St., New York, N. Y.
LUCKNER, LEO BAUM	8713 Lewis Ave., Elmhurst, N. Y.
MALTER, CHARLES	55 Ave. C., New York, N. Y.
McNERNEY, JOHN JOSEPH	539 West 150th St., New York, N. Y.
MILLER, HENRY GEORGE	300 East 88th St., New York, N. Y.
MORANO, GEORGE	38-75 11th St., Long Island City, N. Y.
NELSON, JOSEPH	1381 Washington Ave., New York, N. Y.
ODIN, VICTOR WALT	104-54 42nd Ave., Corona, N. Y.
PASSEL, LEON	1536 Seabury Pl., New York, N. Y.
RIORDAN, JOHN ANTHONY	43-42 45th St., Long Island City, N. Y.
RIVETZ, MARTIN	539 Christopher St., Brooklyn, N. Y.
ROBERTS, JOHN ALEXANDER	209 West 104th St., New York, N. Y.
ROSEN, JAMES JACOB	11 East 7th St., New York, N. Y.
RUCHMAN, JOSEPH	822 Hewitt Pl., Bronx, N. Y.
SILVERMAN, SOL H.	465 East 93rd St., Brooklyn, N. Y.
WILSON, EDMUND BURKE	181 Vermilyea Ave., New York, N. Y.

CE & ME—SECTION 3

BRENNER, FRED GUSTAVE	2690 Webb Ave., Bronx, N. Y.	N. ENG.
GOLDSTEIN, NATHAN	3801 18th Ave., Brooklyn, N. Y.	1936
GOMEZ, CLAUDE A.	206 34th St., North Bergen, N. J.	CE
LAKE, FRANCIS JOHN	128 Parkville Ave., Brooklyn, N. Y.	ME
PELLEGRINI, WILLIAM ULYSSES	2A King St., New York, N. Y.	
REIBEISEN, JOSEPH	221 Linden Blvd., Brooklyn, N. Y.	
SCHAAF, GEORGE CHARLES	71-29 65th Pl., Glendale, N. Y.	
SCHARF, HYMAN H.	605 Rockaway Ave., Brooklyn, N. Y.	
SCHMIDT, FRANK JOHN	426 Menahan St., Ridgewood, N. Y.	
SCHWARTZ, ROBERT M.	1561 44th St., Brooklyn, N. Y.	
SEGALMAN, ALEXANDER LEWIS	1339 St. Johns Pl., Brooklyn, N. Y.	
SHILITZ, SAUL	530 7th St., West New York, N. J.	
SIEGEL, LEONARD	96 Grant Ave., Jersey City, N. J.	
STERN, ADOLPH BENJAMIN	2880 E. 6th St., Brooklyn, N. Y.	
SUNDERMEYER, JOHN KAREL	123 North 13th St., Paterson, N. J.	
TARAS, PAUL	848 Tinton Ave., New York, N. Y.	
THOMPSON, WALTER NORWOOD	40 Jefferson Ave., Jersey City, N. J.	
TROCKER, SOLOMON	3126 Coney Island Ave., Brooklyn, N. Y.	
TUCKER, HAROLD	570 Willoughby Ave., Brooklyn, N. Y.	
URICK, NATHAN	894 East 163rd St., Bronx, N. Y.	
VINCI, CARMELO ANTHONY	322 Palisade Ave., Cliffside Park, N. J.	
WESTMAN, JOHN FRANKLYN	5 South Chestnut St., Hempstead Gardens, L. I.	
WILDMAN, PHILIP	1936 East 8th St., Brooklyn, N. Y.	
YESOWITZ, MAX	581 Linwood St., Brooklyn, N. Y.	
ZWECHER, ABRAHAM	1058 Simpson St., New York, N. Y.	

EE SECTION 4

ADLER, HERBERT	1265 East 8th St., Brooklyn, N. Y.	N. ENG.
ARUCK, MICHAEL	937 East 181st St., New York, N. Y.	1936
BERG, STANLEY EDWARD	9413 — 74th St., Woodhaven, L. I., N. Y.	EE
CALLEN, ADAM SCOTT	368 3rd Ave., New York, N. Y.	
CARLIN, JAMES GERARD	225 Burns St., Forest Hills, L. I.	
COLEMAN, IRWIN M.	8 Vermilyea Ave., New York, N. Y.	
COOPER, VINCENT DAVID	2126 East Seventh St., Brooklyn, N. Y.	
CUTTICA, HERCULES	408 West 46th St., New York, N. Y.	
DLUGATCH, IRWIN	678 Willoughby Ave., Brooklyn, N. Y.	
DUGUID, RAYMOND BRIGHTON	167 Linden Blvd., Brooklyn, N. Y.	
GADEMANN, OSCAR M.	520 Evergreen Ave., Brooklyn, N. Y.	
GARRISON, VERNON LaFOREST	91 Andros Ave., Mariners Harbor, N. Y.	
GILL, JAMES JOHN	37-16 65th St., Woodside, N. Y.	
GOEBELER, Jr., WILLIAM HENRY	421 East 159th St., New York, N. Y.	
GOLDBERG, MILTON	618 Franklin St., Elizabeth, N. J.	

GORMAN, CHARLES EDWARD	153-24 Sanford Ave., Flushing, N. Y.
HALLIDAY, ROBERT S.	29 Kermit Pl., Brooklyn, N. Y.
KAMINSKY, MORRIS	126 Clara St., Brooklyn, N. Y.
KEEGAN, JAMES HENRY	59 South St., Newark, N. J.
KILMER, RAYMOND K.	103-21 169th St., Jamaica, N. Y.
KOVACSEVICS, GEORGE M.	96 Derby St., Valley Stream, N. Y.
KUGLER, LEO	4656 Hudson Blvd., Union City, N. J.
LANDSVERK, ARTHUR JORDAN	754 Hudson Ave., West New York, N. J.
LUKANITSCH, LEONARD RICHARD	7-9 East 109th St., New York, N. Y.
NOELLE, HAROLD CHARLES	37-23 94th St., Jackson Heights, N. Y.
NOLOBOFF, MORRIS	587 Jerome St., Brooklyn, N. Y.
OSTERHOLZ, DIEDRICH MYRON	60-15 Woodbine St., Ridgewood, L. I.
ROTELLA, FRANK	700 East 163rd St., New York, N. Y.
THORSEN, THORALF EDWARD	844 — 42nd St., Brooklyn, N. Y.
WHITE, EDWARD GEORGE	120-36 195th St., St. Albans, L. I.

EE SECTION 5

N. ENG.	BRENNER, MELVIN MEYER	923 Barretto St., New York, N. Y.
1936	BURKE, JAMES JOSEPH	649 Dahill Road, Brooklyn, N. Y.
EE	DOUTHIT, REGINALD	180 West 135th St., New York, N. Y.
	MAGER, IRVING A.	487 Columbus Ave., New York, N. Y.
	MATSON, DAVID LLOYD	50 Turner Pl., Brooklyn, N. Y.
	MIHALIK, JOHN JOSEPH	52 East Clifton Ave., Clifton, N. J.
	MUNN, ALFRED JAMES	151 Jay Ave., Lyndhurst, N. J.
	NORMANN, JOSEPH ANDREW	1142 Hancock St., Brooklyn, N. Y.
	OAKWOOD, ELLIOTT FRANKLIN	110 East 29th St., Brooklyn, N. Y.
	ORELLANA, ILDEFONSO G.	8817 — 50th Ave., Elmhurst, L. I., N. Y.
	PAPPAS, LAMPAS ARIS	475 — 4th Ave., New York, N. Y.
	PERLMAN, IRVING	1004 Union St., Brooklyn, N. Y.
	RICH, ABRAHAM JACK	49 Thatford Ave., Brooklyn, N. Y.
	RICHTARCSIK, FRANK	96 Clinton Pl., Yonkers, N. Y.
	SCANLON, ROBERT PATRICK	282 Reservoir Pl., Bronx, N. Y.
	SCHUMACHER, HENRY	360 — 46th St., Brooklyn, N. Y.
	SHAFIROFF, HARRY	2871 West 30th St., New York, N. Y.
	SPRINGER, GEORGE THOMAS	401 — 28th St., Woodcliff, N. J.
	TANNER, THEODORE LEA	311 Oak Ave., Oakwood Heights, S. I., N. Y.
	VELLEMAN, JACK	372 St. Johns Pl., Brooklyn, N. Y.
	WARREN, CLIFFORD ARTHUR	967 West 4th St., Plainfield, N. J.
	WAY, MILTON TREMONT	3103 Snyder Ave., Brooklyn, N. Y.
	WEGELE, RUDOLPH VINCENT	215 East 89th St., New York, N. Y.
	WESTERSTROM, CHARLES AUGUST	968 Gillies Ave., North Bergen, N. J.
	WIESENDANGER, EVERETT JOHN	28 Caryl Ave., Yonkers, N. Y.
	ZENONI, WALTER EUGENE	2750 Paulding Ave., New York, N. Y.

ChE SECTION 6

N. ENG.	ARONSON, DAVID	1416 — 48th St., Brooklyn, N. Y.
1936	BECKER, FREDERICK AUG.	335 South Wellwood Ave., Lindenhurst, L. I.
ChE	BENDA, GEORGE	454 Seneca Ave., Ridgewood, L. I., N. Y.
	BERGMAN, RALPH JOEL	835 Stebbins Ave., Bronx, N. Y.
	BOOTHBY, OTIS LEONEL	357 — 9th St., Brooklyn, N. Y.
	BOROSS, STEPHEN	317 East 78th St., New York, N. Y.
	COOPER, MORRIS	670 East 176th St., Bronx, N. Y.
	CZARNECKI, JOHN DANIEL	101 Clifton Pl., Jersey City, N. J.
	DRIMER, DAVID	665 Dawson Ave., Bronx, N. Y.
	DRUTMAN, JACK	642 Lafayette Ave., Brooklyn, N. Y.
	EDMAN, WALTER WILLIAM	813 — 71st St., Brooklyn, N. J.
	ELKIND, ARTHUR	380 East 29th St., Paterson, N. J.
	ELKIND, NATHANIEL T.	380 East 29th St., Paterson, N. J.
	EMIGHOLZ, FREDERICK	185 Conover St., Brooklyn, N. Y.
	HILL, JOSEPH A.	1690 Union St., Brooklyn, N. Y.
	HUNGER, MEYER MARTIN	118 Herzl St., Brooklyn, N. J.
	JOSITE, WILLIAM	8 Manhattan Ave., Jersey City, N. Y.
	KLOTZKY, BENJAMIN	871 East 170th St., Bronx, N. Y.
	LEVINE, BENJAMIN	1151 Stratford Ave., New York, N. Y.
	LINDNER, JOHN ANTHONY	1708 Woodbine St., Brooklyn, N. Y.
	PETERSEN, PERRY HAROLD	10217 — 129th St., Richmond Hill, N. Y.

RIBAK, THEODORE	116 Clara St., Brooklyn, N. Y.
SCHNEIDER, ABRAHAM	1831 Sterling Pl., Brooklyn, N. Y.
SCHRAMM, LOUIS JOSEPH	117-09 130th Ave., Richmond Hill, N. Y.
TOMASHEVSKY, HARRY	376 East 8th St., New York, N. Y.
TOSH, ARTHUR KENNETH	87 Parker Road, Elizabeth, N. J.
WALD, NATHAN	748 Trinity Ave., Bronx, N. Y.
WINICK, DAVID STANLEY	1501 Bryant Ave., New York, N. Y.

Fourth Year

CE SECTION

BERNSTEIN, SAM	1380 Washington Ave., New York, N. Y.	N. ENG. 1935 CE
BIRGY, JACOB	585 Tenth Ave., New York, N. Y.	
BLANKSTEIN, ARTHUR	2323 Walton Ave, Bronx, N. Y.	
BLAU, LOUIS	3510 — 35th St., Astoria, N. Y.	
BLUM, ALBERT E.	5501 — 15th Ave., Brooklyn, N. Y.	
BROWN, GEORGE ELIOT	900 Ave. C., Bayonne, N. J.	
CASSELL, JOHN ALLAN	720 — 50th St., Brooklyn, N. Y.	
COHEN, SAMUEL J.	1778 East 15th St., Brooklyn, N. Y.	
CURTIS, Jr., FRANK	253 Ridgewood Ave., Brooklyn, N. Y.	
DUFFY, CHARLES	828 — 51st St., Brooklyn, N. Y.	
DUNCAN, JAMES LEONARD	89-07 34th Ave., Jackson Heights, N. Y.	
EASTWOOD, WILLIAM NORMAN	703 Franklin Ave., Brooklyn, N. Y.	
EITELBERG, SIDNEY	104 Heyward St., Brooklyn, N. Y.	
FARKAS, HARRY	3409 — 14th Ave., Brooklyn, N. Y.	
FITZGERALD, JOSEPH J.	28 Marine Ave., Brooklyn, N. Y.	
FRISCH, SOLOMON	347 McDonald Ave., Brooklyn, N. Y.	
GUDEL, JULIAN FRANCIS	574 — 73rd St., Brooklyn, N. Y.	
HALLY, EDWARD F.	7802 4th Ave., Brooklyn, N. Y.	
HANNON, JOHN B.	654 — 74th St., Brooklyn, N. Y.	
HAPP, EMMET GARISS	87-18 162nd St., Jamaica, L. I.	
HARRIS, LEON L.	360 St. Ann's Ave., New York, N. Y.	
JAHODA, FRANK WILLIAM	21-69 — 35th St., Astoria, L. I.	
JOHNSON, DAVID ROBERT	106 Campus Road, Grymes Hill, S. I., N. Y.	
KELLY, PETER JOSEPH	37-57 Warren St., Jackson Heights, L. I., N. Y.	
KNIPPER, FRANCIS EMIL	550 Bainbridge St., Brooklyn, N. Y.	
KOCHMAN, EMIL JOSEPH	438 East 70th St., New York, N. Y.	
KOEHL, JOEL	684 Ralph Ave., Brooklyn, N. Y.	
LEON, ROBERT KENNETH	525 Eastern Parkway, Brooklyn, N. Y.	
LEVEROCK, SIDNEY CLEMENT	101-45 — 114th St., Richmond Hill, N. Y.	
LEVINE, JACK GEORGE	315 Powell St., Brooklyn, N. Y.	
LEWIS, IRVING D.	21 East 110th St., New York, N. Y.	
LUNA, AUGUST W.	2475 Tiebout Ave., New York, N. Y.	
MARTINEZ, JOSEPH	941 Hoe Ave., Bronx, N. Y.	
MAYER, JOHN BYRON	311 West 112th St., New York, N. Y.	
MAZZUCCA, JOSEPH ANTHONY	398 East 152nd St., New York, N. Y.	
MENDIZZA, GERMANO ROMEO	409 Bay Ridge Ave., Brooklyn, N. Y.	
MILBERT, HYMAN	1270 Grant Ave., Bronx, N. Y.	
MILNER, JAMES HENRY	21-47 37th St. Long Island City, N. Y.	
MUZELAK, MICHAEL NICHOLAS	242 East 89th St., New York, N. Y.	
NESTI, ANTHONY JEAN	546 Brace Ave., Perth Amboy, N. J.	
PAOLILLO, DOMINICK JOSEPH	454 Carlton Ave., Brooklyn, N. Y.	
PETTERSEN, EUGENE ARNT	10 Beech St., Cranford, N. J.	
REUSS, WILLIAM PETER	130 Highpoint Ave., Weehawken, N. J.	
RINGEL, PHILIP	565 Elton St., Brooklyn, N. Y.	
ROULETT, Jr., JOHN PATRICK	23 Davis St., Long Island City, N. Y.	
SANDOR, RALPH	38 McLean St., Passaic, N. J.	
SARANIERO, EMIL JOSEPH	31 St. Marks Ave., Brooklyn, N. Y.	
SCHUYLER, WILLIAM FRED	172 5th Ave., New York, N. Y.	
STOLLE, ARTHUR DUDLEY	119 So. Broadway, White Plains, N. Y.	
TARNOWSKY, EMILE	20 Yonkers Ave., Yonkers, N. Y.	
TRACEY, FRANK A.	46 Bidwell Ave., Jersey City, N. J.	
WEDEMAN, JOHN D.	35-31 94th St., Jackson Heights, N. Y.	
WEXLER, SAUL	7106 — 18th Ave., Brooklyn, N. Y.	
WOLIN, MICHAEL	53-03 Beverley Road, Brooklyn, N. Y.	

ME SECTION

N. ENG.	ARATA, CHARLES ANTHONY	213 6th Ave., New York, N. Y.
1935	COHEN, SOL	78 Belmont Ave., Brooklyn, N. Y.
ME	COUSE, JOHN CORTRIGHT	663 Virgil Ave., Ridgely, N. J.
	CROSBY, JOHN	25 East 177th St., New York, N. Y.
	DI PRIMA, ANTHONY	544 Hart St., Brooklyn, N. Y.
	EDELSTEIN, ABRAHAM	1129 Morris Ave., New York, N. Y.
	EHRlich, WILLIAM	287 Division Ave., Brooklyn, N. Y.
	FEXAS, MICHAEL	18 Lawrence Ave., Brooklyn, N. Y.
	FOLTAN, LOUIS	966 Hoe Ave., Bronx, N. Y.
	HORBUND, ISADORE	606 Banner Ave., Brooklyn, N. Y.
	KIVO, SEYMOUR	3451 Giles Pl., Bronx, N. Y.
	KREISINGER, PAUL STEVENS	216 Madison Ave., Clifton, N. J.
	KROLL, LEONARD ARTHUR	1931 — 62nd St., Brooklyn, N. Y.
	NAGOSHINER, GEORGE	1777 Bryant Ave., Bronx, N. Y.
	NELSON, ARTHUR JOSEPH	132 Lexington Ave., Port Richmond, S. I.
	SCHMIDT, FRED WILLIAM	257 Linden St., Brooklyn, N. Y.
	STEPHENSEN, FREDERIK	Box 203, King's Park, L. I., N. Y.

EE SECTION

N. ENG.	BAUMAN, HYMAN	2021 — 66th St., Brooklyn, N. Y.
1935	BERGLER, ROBERT JOSEPH	1981 La Fontaine Ave., Bronx, N. Y.
EE	CARBONE, EDWARD ARNOLD	4702 Fort Hamilton Parkway, Brooklyn, N. Y.
	COFFEY, JAMES EDWARD	1458 72nd St., Brooklyn, N. Y.
	COSTA, JOSEPH FRANK	7811 — 19th Ave., Brooklyn, N. Y.
	DE LA CRUZ, MIGUEL P.	312 East 33rd St., New York, N. Y.
	DUKE, HARRY	2011 Morris Ave., Bronx, N. Y.
	EKSTRAND, STURE OLAF	18 Cole St., Bergenfield, N. J.
	EPSTEIN, LEON	25 Clark Pl., Bronx, N. Y.
	FLEISCHER, HERBERT EDGAR	3752 — 89th St., Jackson Heights, L. I.
	FOLGNER, HERMAN AUGUST	146-33 20th Road, Whitestone, L. I.
	FRANKE, HERMAN KARL	626 Trinity Ave., New York, N. Y.
	GARTLEMANN, LOUIS HENRY	1350 Stebbins Ave., Bronx, N. Y.
	GORIN, LEO	219 Brightwater Court, Brooklyn, N. Y.
	GRAVDAL, NILS	440 — 57th St., Brooklyn, N. Y.
	GRUTZNER, WALTER EUGENE	397 Prospect Ave., Brooklyn, N. Y.
	HAYES, WILLIAM SUMMERVILLE	19 Florence St., Englewood, N. J.
	HERMAN, FRED ANDREW	475 South Columbus Ave., Mount Vernon, N. Y.
	KLUZ, WALTER CASIMIR	106 Catskill Ave., Yonkers, N. Y.
	KOPLOWITZ, SIDNEY M.	3043 Emmons Ave., Brooklyn, N. Y.
	KORNBLUTH, SAM SID	441 Brooklyn Ave., New York, N. Y.
	LAMPKIN, REDVERS J.	310 West 153rd St., New York, N. Y.
	LINDHEIMER, EMANUEL MAX	5201 — 94th St., Elmhurst, N. Y.
	LONG, LOUIS JAMES	860 West 181st St., New York, N. Y.
	MCGUIRE, LEO THOMAS	649 Bay Ridge Parkway, Brooklyn, N. Y.
	McMAHON, JOHN JOSEPH	1240 Clay Ave., New York, N. Y.
	OFFT, OTTO	3130 — 81st St., Jackson Heights, L. I., N. Y.
	PERLMAN, IRVING	1070 Faile St., Bronx, N. Y.
	QUICK, WILLIAM SEMMEL	518 Trinity Pl., Westfield, N. J.
	SCHMELZER, WILLIAM	3423 — 41st St., Astoria, L. I.
	SLACK, WILLIAM GEORGE	2837 Roebling Ave., Bronx, N. Y.
	SMITH, EDWIN VINCENT	1153 Grand Concourse, New York, N. Y.
	STRAUB, HERMAN WILLIAM	New Bridge Road, North Hackensack, N. J.
	VISCO, PASQUALLE HENRY	303 — 6th Ave., New York, N. Y.
	WEBB, WILLIAM BYRON	2269 Hampden Pl., Bronx, N. Y.
	WIENER, NAT	2357 Davidson Ave., Bronx, N. Y.
	WILCOX, DONALD	2444 Walton Ave., Bronx, N. Y.
	WILDFEIR, SAMUEL	1369 — 44th St., Brooklyn, N. Y.

ChE SECTION

N. ENG.	ALBERT, HAROLD IRVING	2164 — 72nd St., Brooklyn, N. Y.
ChE.	KASHMAN, MORRY J.	319 Hooper St., Brooklyn, N. Y.
1935	KUGEL, WALTER FRITZ	270 Belleville Pike, North Arlington, N. J.
	LOVAS, JOSEPH JOHN	1723 Himrod St., Brooklyn, N. Y.
	MARK, EGBERT WALTER	372 St. Mark's Place, St. George, N. Y. C.
	NEWGREEN, KARL A.	21 West High St., Somerville, N. J.

OLSEN, KARL MARTIN.....	4206 — 5th Ave., Brooklyn, N. Y.
RASMUSSEN, MARVIN HELMAR.....	985 Nostrand Ave., Brooklyn, N. Y.
ROSEN, GUSTAV ALBIN.....	562 — 83rd St., Brooklyn, N. Y.
SCHNETTLER, FRANK JOSEPH.....	28 Cook St., Haledon, N. J.
SEIFF, HARLEY BERNARD.....	376 Keap St., Brooklyn, N. Y.
SILBERMAN, ADOLPH ALFRED.....	106 Bainbridge St., Brooklyn, N. Y.
SPIEGELMAN, ARTHUR.....	16 Grant Terrace, Mamaroneck, N. Y.
STOKIEN, EDWIN JOSEPH.....	189-29 117th Road, St. Albans, N. Y.
WEINTRAUB, WILLIAM.....	988 Greene Ave., Brooklyn, N. Y.

Fifth Year CE SECTION

ABRAMSON, MAX.....	4218 12th Ave., Brooklyn, N. Y.	N. ENG.
ASHBY, FERNA GEORGE.....	20 Morningside Ave., New York, N. Y.	1934
BERGMEISTER, CHARLES NICHOLAS.....	638 Fulton St., Elizabeth, N. J.	CE
CALMEL, LOUIS ROGER.....	410 West 44th St., New York, N. Y.	
CAPLAN, DAVID.....	2813 Ocean Ave., Brooklyn, N. Y.	
DE FRANCESCO, DOMINICK.....	532 East 184th St., Bronx, N. Y.	
DI PRIMA, JOSEPH.....	544 Hart St., Brooklyn, N. Y.	
DVORAK, RUDOLPH.....	72-24 Grand Ave., Maspeth, N. Y.	
FRIEDMAN, JULIUS.....	2789 East 7th St., Brooklyn, N. Y.	
FROMM, AUGUST GEORGE.....	1312 Clay Ave., Bronx, N. Y.	
GEYER, PAUL W.....	218 West 16th St., New York, N. Y.	
GOLDBERG, SAMUEL.....	1636 St. Nicholas Ave., New York, N. Y.	
GOULD, MAURICE.....	1914 — 24th Road, Astoria, N. Y.	
GREENBERG, JULIUS H.....	7119 — 19th Ave., Brooklyn, N. Y.	
HALBREICH, HARRY.....	390 East 98th St., Brooklyn, N. Y.	
HUMPHREYS, JOSEPH.....	25-63 — 33rd St., Astoria, L. I., N. Y.	
IDASHKIN, MAX.....	142 East 27th St., New York, N. Y.	
JORDAN, ABRAHAM.....	315 Sanford Ave., Newark, N. J.	
KNOX, VERNON E.....	1172 Stratford Ave., Bronx, N. Y.	
La FORTE, MICHAEL JOSEPH.....	814 Avenue V., Brooklyn, N. Y.	
LOWEY, LESLIE LAWRENCE.....	97-10 25th Ave., East Elmhurst, N. Y.	
MITTAG, ALBERT A.....	348 Maple St., Brooklyn, N. Y.	
NEUFELD, MILTON.....	1170 Walton Ave., Bronx, N. Y.	
O'BRIEN, JOSEPH.....	43-14 147th St., Flushing, N. Y.	
PATLOVE, MURRAY.....	585 Quincy St., Brooklyn, N. Y.	
PETERS, GEORGE HUGO.....	280 North Columbus Ave., Freeport, L. I.	
PHELAN, JAMES CHRISTOPHER.....	1 Church Court, White Plains, N. Y.	
PLEASANTS, BEN.....	311 Palisade Ave., Union City, N. J.	
RAMER, NATHAN GEORGE.....	511 West 170th St., New York, N. Y.	
RAMPINO, MICHAEL ANTHONY.....	288 East 152nd St., New York, N. Y.	
ROHLICH, GERARD A.....	812 Buchman Ave., Ridgewood, L. I., N. Y.	
ROWLAND, WALTER.....	636 West End Ave., New York, N. Y.	
SCHERR, MICHAEL.....	1550 Sterling Pl., Brooklyn, N. Y.	
SHAPIRO, JACK ROBERT.....	89 Seigel St., Brooklyn, N. Y.	
SIMONS, WALTER.....	12 Bacot St., Jersey City, N. J.	
SPANIER, ELIAS.....	1164 54th St., Brooklyn, N. Y.	
STAFFORD, FRANK.....	956 East 172nd St., Bronx, N. Y.	
STUBLER, ANDREW JAMES.....	90 Harrison St., c/o A. Lange, Brooklyn, N. Y.	
WATSON, EDGAR.....	538 — 84th St., Brooklyn, N. Y.	
WECHSLER, ARTHUR A.....	389 Monroe St., Brooklyn, N. Y.	
ZAWADOWICZ, STANISLAUS JOSEPH.....	70 Essex St., Jersey City, N. J.	

ME SECTION

ALEXANDER, FRANCIS HENRY.....	91-39 82nd St., Woodhaven, L. I.	N. ENG.
BARDES, GARFIELD JAMES.....	271 Parkside Ave., Brooklyn, N. Y.	1934
BLECKMAN, GUSTAVE G.....	104-30 120th St., Richmond Hill, N. Y.	ME
CHRISTENSEN, JAMES.....	61 Lexington Ave., Jersey City, N. J.	
CRANE, HERBERT H.....	1299 Lincoln Pl., Brooklyn, N. Y.	
DARDICK, DAVID.....	3745 Lyme Ave., Brooklyn, N. Y.	
DVORAK, GEORGE CHARLES.....	4524 Park Ave., Bronx, N. Y.	
FERRER, ALBERT DUDLEY.....	175 Larch Ave., Teaneck, N. J.	
FIGELMAN, BENJAMIN.....	527 Putnam Ave., Brooklyn, N. Y.	
HARRIS, HERBERT ISAAC.....	1364 Bronx River Ave., Bronx, N. Y.	

HESS, JACOB.....240 Irving Ave., Brooklyn, N. Y.
 IHLENBURG, HARRY.....183 Etna St., Brooklyn, N. Y.
 KLEINFELDER, WALTER CHARLES.....169 Fingerboard Road, Rosebank, S. I., N. Y.
 McKEITH, PETER EDWARD.....94-03 96th St., Ozone Park, N. Y.
 MELICK, THOMAS EDWIN.....Belle Mead, N. J.
 OWENS, JOSEPH EDWARD.....489 — 9th St., Brooklyn, N. Y.
 PETERSEN, JOHN HENRY.....342 Eldert St., Brooklyn, N. Y.
 ROTH, MORRIS E.....1000 Fox St., Bronx, N. Y.
 SACHSE, WILLIAM JOHN.....87-16 124th St., Richmond Hill, N. Y.
 SCHICK, HERMAN LUCAS.....234 Cornelia St., Brooklyn, N. Y.
 SHERRY, JOHN LAWRENCE.....9 Vreeland Terrace, Jersey City, N. J.
 TRENCK, EMIL FREDERICK.....41 Hillside Ave., New Rochelle, N. Y.
 WEBER, ARTHUR.....1865 — 62nd St., Brooklyn, N. Y.

EE SECTION

N. ENG.
 1934
 EE

BALSAM, HARRY.....4741 — 44th St., Woodside, L. I.
 BLAM, LESLIE LEWIS.....563 Cauldwell Ave., Bronx, N. Y.
 BRODSKY, JACOB.....2179 Washington Ave., Bronx, N. Y.
 BURDIAN, WILLIAM.....4122 — 52nd St., Woodside, L. I.
 CAHILL, JOHN VINCENT.....383 Liberty St., Dongan Hills, S. I.
 CATALDO, VICTOR MANUEL.....827 Jackson Ave., New York, N. Y.
 CHRISMAN, MILTON DAVID.....116 East 10th St., New York, N. Y.
 COBIANCHI, THOMAS.....156 Lewis St., Paterson, N. J.
 COFFIN, ARTHUR GEORGE.....158 East 38th St., Brooklyn, N. Y.
 CONSTABLE, JAMES.....10120 — 107th St., Richmond Hill, N. Y.
 DAUBENSCHMIDT, EDWARD ROBERT.....75 West 183rd St., New York, N. Y.
 DISTEFANO, EMANUEL.....863 Hunts Point Ave., Bronx, N. Y.
 DUBLIN, LEWIS I.....1647 Park Pl., Brooklyn, N. Y.
 EHRENBERG, NATHAN SAMUEL.....444 Gregory Ave., Passaic, N. J.
 ERNEST, JOHN HERBERT.....3 North Fourth St., Paterson, N. J.
 FEINSTEIN, ISAAC.....317 Troy Ave., Brooklyn, N. Y.
 FISCHER, OSCAR L.....2323 Walton Ave., Bronx, N. Y.
 FROST, ALFRED FRED.....3121 — 29th St., Long Island City, N. Y.
 GEIPEL, WILLIAM EMIL.....259 Euclid Ave., Brooklyn, N. Y.
 GOAZEMPIS, MARCEL GEORGE.....1929 Davidson Ave., New York, N. Y.
 GRUNER, FREDERICK RUSTICUS.....125 Park Ave., Paterson, N. J.
 HOLMLIN, HARRY WALTER.....218 — 91st St., Brooklyn, N. Y.
 KALNA, KERMIT S.....549 — 36th St., Woodcliff, N. J.
 KLEIN, MILTON.....82 Ravine Ave., Yonkers, N. Y.
 KRAUSE, HERMAN HUGO.....542 Elm Ave., Ridgefield, N. J.
 LAROSE, WILLIAM MICHAEL.....1783 New York Ave., Brooklyn, N. Y.
 MATTHYSSE, IRVING FREDERICK.....2773 Briggs Ave., Bronx, N. Y.
 McMANAMY, JAMES JOSEPH.....2414 University Ave., New York, N. Y.
 MESEL, SOLOMON.....190 Cator Ave., Jersey City, N. J.
 MILLER, JACK ROBERT.....2074 Harrison Ave., Bronx, N. Y.
 MOND, LOUIS.....705 East 9th St., New York, N. Y.
 NIVER, ABRAHAM.....151 East 26th St., New York, N. Y.
 O'BRIEN, GEORGE WHEELER.....237-30 Edmore Ave., Bellerose, N. Y.
 PARODI, VICTOR.....38 Macdougall St., New York, N. Y.
 PRUCHA, HAROLD EMIL.....152 West 14th St., New York, N. Y.
 REIMANN, RENE.....317 West 56th St., New York, N. Y.
 RIBREAU, GILBERT EDMOND.....4335 — 40th St., Long Island City, N. Y.
 SCHLANG, KURT.....46 Stuyvesant St., New York, N. Y.
 SLAVIK, Jr., FERDINAND CHARLES.....2553 — 33rd St., Astoria, L. I.
 SMYTHE, WILLIAM H. A.....159 Forest St., Montclair, N. J.
 TESORIERO, JOHN.....7711 — 5th Ave., Brooklyn, N. Y.
 TINKEL, LEONARD JOSEPH.....825 Tinton Ave., New York, N. Y.
 TOLIVAR, CESAR AUGUSTINE.....3016 Clarendon Road, Brooklyn, N. Y.
 TREICHLINGER, EUGENE R.....152 West 168th St., New York, N. Y.
 WEINBERG, SIDNEY.....24 Bay 31st St., Brooklyn, N. Y.
 WENZOUSKY, IRVING.....231 East 9th St., New York, N. Y.
 WIELD, PETER F.....179-03 Jamaica Ave., Jamaica, N. Y.
 WILLE, ANTON J.....205-24 110th Ave., Hollis, L. I.

N. ENG.
 1934
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ChE SECTION

ANTHONY, ROBERT STEPHEN.....110 East 17th St., New York, N. Y.
 DINKFELD, AUGUST MARTIN.....285 Maryland Ave., Paterson, N. J.

DONATO, JOHN B.	379 Van Brunt St., Brooklyn, N. Y.
FISHBACH, A. LEON	1173 — 44th St., Brooklyn, N. Y.
GANGI, FRANK	458 Paulison Ave., Passaic, N. J.
GERSTEL, SYDNEY CHARLES	8611 Bay Parkway, Brooklyn, N. Y.
GORDON, PHILIP L.	2947 West 29th St., Brooklyn, N. Y.
HAFFCKE, WILLIAM H.	463 Hawthorne Ave., Yonkers, N. Y.
HAGEN, GEORGE	7905 — 3rd Ave., Brooklyn, N. Y.
HARATONIK, WILLIAM	34-56 30th St., Long Island City, N. Y.
HEINLEIN, EMIL	Stewart Ave., Garden City, N. Y.
KAYSER, EMIL JULIUS	334 Palmetto St., Brooklyn, N. Y.
LANDAU, MILTON	609 West 137th St., New York, N. Y.
MAUTNER, HENRY R.	203 East 27th St., New York, N. Y.
MELACCIO, FRANK	59-23 Ralph St., Ridgewood, L. I., N. Y.
MORAN, RAYMOND FRANCIS	574 Monroe St., Brooklyn, N. Y.
PANEBIANCO, JOSEPH	342 — 88th St., Brooklyn, N. Y.
PLOETZ, ARTHUR OTTO	32-66 35th St., Astoria, L. I.
POLLERT, WILLIAM JOHN	32-66 35th St., Astoria, L. I.
RATNER, GEORGE B.	542 West 112th St., New York, N. Y.
ROMAN, ARTHUR	553 Lincoln Pl., Brooklyn, N. Y.
SCHEINER, MORRIS	20 Millington St., Mt. Vernon, N. Y.
STEEN, HJALMAR	19 West 76th St., New York, N. Y.
WEISSENBERG, ALEXANDER	7610 Boulevard, Avenne, L. I.

ARCHITECTURAL DRAWING

First Year

APFEL, PAUL	1120 Wheeler Ave., Bronx, N. Y.
ATKINS, FLORENCE DIANE	1110 Lincoln Pl., Brooklyn, N. Y.
BELLO, FERDINAND	213 East 106th St., New York, N. Y.
BINDMAN, FRED HENRY	1023 Dumont Ave., Brooklyn, N. Y.
BLACK, HAROLD HENRY	114-03 128th St., South Ozone Park, N. Y.
BLAHA, FRANK	40-15 72nd St., Jackson Heights, N. Y.
BOBKOWSKI, ALFRED ALEXANDER	515 East 117th St., New York, N. Y.
BRIGLIA, EDWARD JOSEPH	322 East 107th St., New York, N. Y.
BURNS, ARTHUR JULIUS	1023 Summit Ave., Jersey City, N. J.
CIAMPA, DOMINICK JOSEPH	152 East 113th St., New York, N. Y.
COLLETTI, JOSEPH	12 Cedar St., Brooklyn, N. Y.
CORSAN, BENJAMIN	1233 Evergreen Ave., Bronx, N. Y.
COSTA, THOMAS DAMIAN	1731 Edenwald Ave., New York, N. Y.
COSTELLO, JAMES FRANCIS	1159 Clay Ave., Bronx, N. Y.
DE LEO, AUGUSTINE	963 East 224th St., New York, N. Y.
DE SETA, VINCENT FRANK	2167 — 63rd St., Brooklyn, N. Y.
DIEROLF, GABRIELLA M.	5931 Linden St., Ridgewood, N. Y.
DIPIERDOMENICO, STEVE	185 Sackman St., Brooklyn, N. Y.
DRAKE, MARGARET G.	1447 Troy Ave., Brooklyn, N. Y.
EICHACKER, RICHARD JEAN PIERRE	85-32 Grand St., Elmhurst, L. I., N. Y.
EISENBACH, JOHN	523 East 70th St., (Room 739), New York, N. Y.
ELLER, BENJAMIN	8787 — 169th St., Jamaica, N. Y.
FELDMAN, JACOB	739 East 4th St., Brooklyn, N. Y.
FLEISCHMAN, LLOYD	96 Wegman Parkway, Jersey City, N. J.
FRANKL, LEO	2514 Humphry St., East Elmhurst, L. I., N. Y.
FREDERICKSON, CHARLES ARTHUR	1842 Mulford Ave., Bronx, N. Y.
FRIEDMAN, EDWARD	1643 Ocean Parkway, Brooklyn, N. Y.
FRIEDMAN, IRVING	1163 Stratford Ave., Bronx, N. Y.
FRIEDMAN, SOL	501 East 173rd St., Bronx, N. Y.
GALGANO, ANTHONY	816 Jackson Ave., New York, N. Y.
GENTILE, WALTER GEORGE	1903 — 147th St., Whitestone, L. I., N. Y.
GOERNER, EMIL H.	163 Valley Blvd., Woodridge, N. J.
GORLACH, VICTOR JOHN	4427 Monticello Ave., Bronx, N. Y.
GREENBERGER, JACOB	857 Forest Ave., Bronx, N. Y.
HELFAND, SIMON	2262 Douglass St., Brooklyn, N. Y.
HOPPER, GEORGE RICHARD	46 Washington Ave., Suffern, N. Y.
KAPLOWITZ, JACOB	301 Montgomery St., Passaic, N. J.
KARATHANASIS, NICHOLAS	164 East 33rd St., New York, N. Y.
KOCHMAN, HARRY	540 Hegeman Ave., Brooklyn, N. Y.
LaBARBIERA, JOHANNE	72 Tenth St., Woodridge, N. J.

ARCH.
1937

LEITNER, LOUIS L.	675 Linden Blvd., Brooklyn, N. Y.
LEVINE, MORRIS JACOB	818 Howard Ave., Brooklyn, N. Y.
LEVINE, RALPH MILTON	1401 — 67th St., Brooklyn, N. Y.
LEVINE, WILLIAM	212 Cortelyou Road, Brooklyn, N. Y.
MARKOWSKI, JOSEPH P.	221 Eckford St., Brooklyn, N. Y.
MASCHI, LOUIS PAUL	29 East Railroad Ave., Tenefly, N. J.
MILLER, ROBERT G.	24 Bay 31st St., Brooklyn, N. Y.
MISHURE, JOSEPH MAGNUS	1444 Shakespeare Ave., New York, N. Y.
MUNZER, Jr., MARTIN	116 West 88th St., New York, N. Y.
MURRAY, WILLIAM	23-43 — 33rd Ave., Long Island City, N. Y.
PAPIROFF, IRVING HIRSCH	738 East 176th St., Bronx, N. Y.
PRESTIGIACOMO, VINCENT JAMES	1372 Bay Ridge Ave., Brooklyn, N. Y.
QUINN, IRVING	6009 — 19th Ave., Brooklyn, N. Y.
RACZ, ARMAND	106 Northern Ave., New York, N. Y.
RACZ, JOSEPH	241 East 81st St., New York, N. Y.
RANDMETZ, THEODORE	3751 — 18th Ave., Brooklyn, N. Y.
RAUCH, HERBERT C.	130 Mortimer Ave., Rutherford, N. J.
RIEHL, EMIL THEODORE	246 East 199th St., Bronx, N. Y.
ROBERTSON, THOMAS WILLIAM	1501 Sheepshead Court, Brooklyn, N. Y.
ROLLNER, SAUL	315 Mt. Eden Ave., New York, N. Y.
RUBIN, IRVING	3005 Bedford Ave., Brooklyn, N. Y.
SCHULMAN, SOLOMON VINCENT	1054 Eastern Parkway, Brooklyn, N. Y.
SCHUTZER, AARON C.	309 Langdon Ave., Mount Vernon, N. Y.
SCHWARTZ, JACOB HERBERT	109-01 Lefferts Ave., Richmond Hill, N. Y.
SELLNOW, DONALD EDWARD	145-54 — 106th Ave., Jamaica, N. Y.
SLONIM, NORMAN LEE	2548 Bedford Ave., Brooklyn, N. Y.
SLOTOPOLSKY, SOLOMON K.	883 Southern Blvd., New York, N. Y.
SMILOWITZ, MORTON	1307 Boscobel Ave., Bronx, N. Y.
SMITH, RICHARD	1398 Grand Concourse, Bronx, N. Y.
SOLINS, DANIEL	3728 Poplar Ave., Brooklyn, N. Y.
SOLOMON, GEORGE N.	1373 Sterling Pl., Brooklyn, N. Y.
SORNIK, MEYER ALBERT	1624 — 50th St., Brooklyn, N. Y.
STEINMAN, JACOB M.	625 Hemlock St., Brooklyn, N. Y.
TETTELSWAIG, RALPH	1786 Lexington Ave., New York, N. Y.
TOBIN, JOSEPH	1481 East 12th St., Brooklyn, N. Y.
TRENTIN, LEONARD ERNEST	537 East 87th St., New York, N. Y.
URBAN, JOSEPH	2660 Briggs Ave., Bronx, N. Y.
VAN EMDEM, EDWARD	601 West 191st St., New York, N. Y.
VARTERESSIAN, HAIK A.	3547 Laconia Ave., New York, N. Y.
WECHTER, HYMAN	137 South 9th St., Brooklyn, N. Y.
WITTENBERG, THEODORE	2253 Ryer Ave., Bronx, N. Y.
WULFE, NOAH N.	1305 Seneca Ave., Bronx, N. Y.
ZABSKI, THOMAS	1019 — 3rd Ave., New York, N. Y.
ZWEIG, EMANUEL	936 — 51st St., Brooklyn, N. Y.

Second Year

ARCH.	ABBATE, JOHN A.	508 East 14th St., New York, N. Y.
1936	ABRUZZESE, RALPH FRANK	66 Maujer St., Brooklyn, N. Y.
	ACAMPORA, SALVATOR	565 East 181st St., New York, N. Y.
	APOSTOLOU, NICHOLAS	86 Quentin Road, Brooklyn, N. Y.
	AUERBACH, SAM	669 New Jersey Ave., Brooklyn, N. Y.
	BASSOFF, WILLIAM	1304 Stebbins Ave., Bronx, N. Y.
	BEINERT, JOHN DAVID	20-01 Madison St., Ridgewood, N. Y.
	BEYNS, CHARLES	431 East 16th St., New York, N. Y.
	BRADY, EDWARD J.	4505 Fort Hamilton Parkway, Brooklyn, N. Y.
	BRETTTHOLZ, SOL SAUL	2455 Cruger Ave., Bronx, N. Y.
	CANTOR, LOUIS	197 Buffalo Ave., Brooklyn, N. Y.
	CASSIDY, WILLIAM	87 Hicks St., Brooklyn, N. Y.
	CHARLESTON, MURRAY J.	593 Van Sicklen Ave., Brooklyn, N. Y.
	CLAPMAN, ABRAHAM	443 West 44th St., New York, N. Y.
	COCHRAN, RALPH SPENCER	19 Bay Street, City Island, N. Y.
	CORUZZI, ALFRED G.	242 East 46th St., New York, N. J.
	CRIMMINS, ARTHUR J.	166 Bergen Ave., Jersey City, N. Y.
	DALTON, GERALD FRANCIS	401 Vernon Ave., Long Island City, N. J.
	DI PAOLA, BERNARD	556 River St., Paterson, N. Y.
	ELBAUM, MAX C.	2069 — 60th St., Brooklyn, N. Y.

FARLEY, JOSEPH E.	21 Convent Ave., New York, N. Y.
FRIEDMAN, DAVID W.	250 Grafton St., Brooklyn, N. Y.
FRIEDMAN, SEYMOUR	1643 Ocean Parkway, Brooklyn, N. Y.
GOLDMAN, SIDNEY	1761 — 81st St., Brooklyn, N. Y.
GULKO, SAM	641 East 169th St., Bronx, N. Y.
HALSE, OWEN C.	521 West 122nd St., New York, N. Y.
HANPASHIAN, EDWARD A.	25-56—34th St., Long Island City, N. Y.
HEFFAN, BERNARD A.	246 West 106th St., New York, N. Y.
HOFFZIMER, IRVING	1231 — 43rd St., Brooklyn, N. Y.
HOLT, FRED A.	Washington Ave., Pearl River, N. Y.
HUBERMAN, SAMUEL	1299 Eastern Parkway, Brooklyn, N. Y.
INGRAM, GEORGE	117 Fourth St., Ridgely Park, N. J.
IRWIN, EDWIN HARRY	9 Lindbergh St., West Hempstead, N. Y.
ISAACS, ERIC B.	35 McClellan St., Bronx, N. Y.
JENSKY, ARTHUR WILLIAM	500 Eastern Parkway, Brooklyn, N. Y.
KAPOROWSKY, JOSEPH	312 Kosciusko St., Brooklyn, N. Y.
KERNER, JOSEPH	125 Hooper St., Brooklyn, N. Y.
KOCH, ROBERT H.	24-46 — 26th St., Astoria, L. I., N. Y.
KOSZALKA, JOHN J.	140 North 8th St., Brooklyn, N. Y.
KOTERWAS, THEODORE	2132 Gleason Ave., Bronx, N. Y.
LO BUE, FRANK R.	864 Cauldwell Ave., Bronx, N. Y.
MCDONOUGH, JOSEPH F.	626 Sheridan Ave., Plainfield, N. J.
MERLETTO, LOUIS ARTHUR	262 Cliff St., Fairview, N. J.
MONAK, EDMUND G.	3128 Fairfield Ave., Bronx, N. Y.
MONTROSE, LOUIS	964 Eastern Parkway, Brooklyn, N. Y.
NEIDIG, FRANK HARRY	12 Chatham Pl., North Plainfield, N. J.
OLIVERI, JAMES	2418 Cambreleng Ave., Bronx, N. Y.
ORLANSKY, REUBEN	402 East 65th St., Brooklyn, N. Y.
OTRANTO, ALFRED	1642 — 69th St., Brooklyn, N. Y.
PELLEGRINELLI, JOSEPH H.	107-06 — 34th Ave., Corona, L. I., N. Y.
PLOTNICK, MAX	1162 — 45th St., Brooklyn, N. Y.
PROCHASKA, FRANK	8447 Dana Court, Elmhurst, L. I., N. Y.
RATHOFER, ALFRED A.	746 — 9th Ave., New York, N. Y.
ROSSI, Jr., LOUIS	465 Walker St., Fairview, N. J.
RUBENSTEIN, SIGMUND	536 Hopkinson Ave., New York, N. Y.
SCHENKER, HYMAN J.	1471 St. Marks Ave., Brooklyn, N. Y.
SCHROEDER, EDWARD	Main St., Pearl River, N. Y.
SCOTT, HOWARD F.	62 Clendenny Ave., Jersey City, N. J.
SHIMANSKY, EDWARD	204 East 53rd St., New York, N. Y.
SILLEG, ALBERT	4355 De Reimer Ave., New York, N. Y.
SOKOLOFF, ABRAHAM	928 Montgomery St., Brooklyn, N. Y.
SOVEREL, Jr., SIDNEY H.	9 Cranberry St., Brooklyn, N. Y.
STEIN, MILTON	300 West Broadway, Long Beach, L. I., N. Y.
STEINMAN, MORRIS M.	470 Paulison Ave., Passaic, N. J.
STEVENS, EMANUEL NICHOLAS	405 South Columbus Ave., Mt. Vernon, N. Y.
TEBBUTT, JACK HENRY	343 East 142nd St., New York, N. Y.
TISSENBAUM, SAMUEL	2068 Vyse Ave., Bronx, N. Y.
WIIRI, PAUL T.	2517 Amsterdam Ave., New York, N. Y.
WILDERMUTH, EDWARD EMIL	1375 Leland Ave., Bronx, N. Y.
YACOMELLI, ALFRED JOSEPH	97 Greenville Ave., Jersey City, N. J.
ZINNER, JOHN R.	137 Broad Ave., Fairview, N. J.
ZUCKERMAN, ABRAHAM A.	1317 Franklin Ave., Bronx, N. Y.

Third Year CONSTRUCTION

ABT, FRED J.	6812 Fresh Pond Road, Ridgewood, N. Y.
ALEXANDER, BERTIL ERIC	246 Lee Ave., Yonkers, N. Y.
APATOV, ABRAHAM	451 Grand St., New York, N. Y.
ASNIN, BENJAMIN	9024 Ave. L., Brooklyn, N. Y.
BOCK, FREDERICK THOMAS	144-18 — 231st St., Rosedale, L. I., N. Y.
BRODY, NATHAN N.	135 Norfolk St., New York, N. Y.
CAFARELLI, ETTORE	77 Ferris Ave., White Plains, N. Y.
CERRACCHIO, PETER	552 Ocean Ave., Jersey City, N. J.
COHEN, DAVID A.	1121 West Farms Road, Bronx, N. Y.
COHEN, JULIUS	594 Union Ave., Bronx, N. Y.
DARWAS, FRANK J.	912 East 169th St., Bronx, N. Y.

ARCH.
1935

DE LA PARRA, DAVID J. R.	118-16 Farmers Ave., St. Albans, L. I., N. Y.
DICKSON, GEORGE DAVID	115 Gordon Ave., North Tarrytown, N. Y.
FREEMAN, GEORGE W.	92-06 — 173rd St., Hillside, L. I., N. Y.
GERVASI, RICHARD J.	1310 Halsey St., Brooklyn, N. Y.
GOODMAN, WILLIAM L.	615 East 136th St., New York, N. Y.
GORDON, FRANK	1893 Andrews Ave., Bronx, N. Y.
HESELSON, HAROLD P.	1152 Simpson St., Bronx, N. Y.
KADISCH, HENRY A.	154 — 23rd St., Brooklyn, N. Y.
KROEGER, EDWARD M.	149 Beechwood Ave., Bogota, N. J.
LEIBOWITZ, HYMAN	66 Lewis Ave., Brooklyn, N. Y.
LERARIO, LEONARD F.	35-33 — 31st St., Long Island City, N. Y.
LEVITZ, HERMAN B.	438 East 103rd St., Brooklyn, N. Y.
MARKARD, OTTO	6155 Madison St., Brooklyn, N. Y.
McGOWAN, JOHN	174 West 107th St., New York, N. Y.
MOLINE, EDWARD J.	2054 Nostrand Ave., Brooklyn, N. Y.
MONTEFERRANTE, HUGO	2446 Lorillard Pl., New York, N. Y.
MORARD, LOUIS C.	61 West 73rd St., New York, N. Y.
MURRAY, DANIEL	324 North Ave., New Rochelle, N. Y.
NOCHMANN, HAROLD M.	2050 Davidson Ave., Bronx, N. Y.
OLSEN, OLAF C.	227 Union St., Brooklyn, N. Y.
PALMERI, JOSEPH	141 Park Ave., Passaic, N. J.
PERLA, CHARLES	958 Gillies Ave., North Bergen, N. J.
ROCCA, WILLIAM	924 East 226th St., Bronx, N. Y.
ROSEN, BERNARD J.	54 Evelyn Pl., Bronx, N. Y.
ROSENTHAL, DAVID	1626 East 4th St., Brooklyn, N. Y.
SCHEPPER, NORMAN C.	4214 Carpenter Ave., Bronx, N. Y.
SCHMIDT, OTTO G.	1312 Adea Ave., Bronx, N. Y.
STAMM, CHARLES J.	768 Melrose Ave., Bronx, N. Y.
STERN, TOBIAS	4103 — 12th Ave., Brooklyn, N. Y.
SZALOCZI, JAMES	389 East 138th St., New York, N. Y.
TESORIERO, DOMINICK	7711 — 5th Ave., Brooklyn, N. Y.
TILLBERG, JOHN CARL	319 Hamilton Ave., Hasbrouck, Heights, N. J.
WEINPEL, GEORGE CHARLES	106 Sherman St., Passaic, N. J.
WETER, HAROLD L.	130-34 Lefferts Ave., Ozone Park, L. I., N. Y.
ZELLERMAYER, MILTON	2077 Vyse Ave., Brooklyn, N. Y.

DESIGN

ARCH. 1935	AMBRUZS, JOSEPH	157 Ave. F., Bayonne, N. J.
	ANASTASIA, ALFRED A.	1723 Beverly Road, Brooklyn, N. Y.
	BERTUCCI, JOSEPH P.	711 Bartholdi St., New York, N. Y.
	DINGENTHAL, JULIUS	1285 Walton Ave., Bronx, N. Y.
	DRANTCH, ALBERT	207 Rodney St., Brooklyn, N. Y.
	JAHRLING, FRANCIS ARTHUR	130-13 — 146th St., South Ozone Park, L. I., N. Y.
	LACKS, IRVING	1118 Lincoln Pl., Brooklyn, N. Y.
	LEE, ALBERT L.	5 West 63rd St., New York, N. Y.
	LISINICCHIA, MICHAEL A.	500 East 11th St., New York, N. Y.
	MESSINEO, EDMUND A.	824 Ave. U., Brooklyn, N. Y.
	NOBLE, SAMUEL M.	3720 81st St., Jackson Heights, N. Y.
	PALOMBO, HARRY	736 Hinsdale St., Brooklyn, N. J.
	ROMOND, GUSTAVE L.	31 Furber Ave., Linden, N. Y.
	ROSS, SIMON	176 Pennsylvania Ave., Brooklyn, N. Y.
	RUSSO, JOSEPH	7517 — 11th Ave., Brooklyn, N. Y.
	SCHIMMENTI, MARIANNO	58-20 Fresh Pond Road, Maspeth, N. Y.
	SEIDERMAN, NATHAN	123 East 94th St., Brooklyn, N. Y.
	SINDELAR, EDWARD F.	517 East 87th St., New York, N. Y.
	SMITH, BERNHARDT R.	81 Featherbed Lane, New York, N. Y.
	SMITH, FRANK J.	392 First St., Brooklyn, N. Y.
	TOMASH, ARTHUR	8640 — 21st Ave., Brooklyn, N. Y.
	WACKER, HENRY G.	71-28 — 68th St., Glendale, L. I., N. J.
	WARD, CHARLES C.	714 Dixie Lane, Plainfield, N. J.

Fourth Year CONSTRUCTION

ARCH. 1934	ABRAMOWITZ, RUBIN	607 Hopkinson Ave., Brooklyn, N. Y.
	ANDERSON, HAROLD	578 Bainbridge St., Brooklyn, N. Y.
	BIEDERMAN, MAX	52 East 123rd St., New York, N. Y.

BROWN, FRANK W.	2850 Creston Ave., New York, N. Y.
CASTELLO, DOMENIC A.	44 Rochelle Terrace, Mt. Vernon, N. Y.
CLERMONT, Jr., ALBERT J.	106 Cox Ave., Yonkers, N. Y.
COHEN, HENRY	500 Madison St., Brooklyn, N. Y.
COHN, HARRY	2310 Walton Ave., Bronx, N. Y.
CORNER, CECIL	1397 Stebbins Ave., Bronx, N. Y.
EBENSTEIN, LOUIS L.	997 East 181st St., New York, N. Y.
FOLEY, WALTER J.	9451 — 242 St., Bellrose, L. I., N. Y.
FREED, BENJAMIN	483 Bergenline Ave., West New York, N. J.
FURST, ALEX	2416 Potter Ave., Astoria, L. I. N. Y.
GARRISON, CLINTON E.	99 Bay Street, City Island, N. Y.
GELLER, ALBERT	9927 — 42nd Ave., Corona, L. I., N. Y.
HANDELMAN, MAX	1350 Fulton Ave., Bronx, N. Y.
HANSEN, CHARLES R.	236 — 6th Ave., Brooklyn, N. Y.
HARRIS, HARRY	273 East 164th St., Bronx, N. Y.
HIRSCH, GEORGE E.	1557 Vyse Ave., New York, N. Y.
HOLDEN, RONALD	64 Summit Road, Tottenville, Staten Island, N. Y.
KANTOR, ISADORE A.	269 Audubon Ave., New York, N. Y.
KILEY, JOHN F.	79-03 — 45th Ave., Elmhurst, L. I., N. Y.
KOOPERSTEIN, JACK	1174 Sheridan Ave., Bronx, N. Y.
KOPECKY, ROBERT A.	649 Kosciusko St., Brooklyn, N. Y.
KOPELMAN, IRVING L.	1181 Eastern Parkway, Brooklyn, N. Y.
KRAMER, JOSEPH J.	437 Brook Ave., Bronx, N. Y.
KRULISH, EDWARD	403 East 73rd St., New York, N. Y.
KRULL, PAUL W.	692 East 139th St., New York, N. Y.
LEVINE, LEON	5½ Utica Ave., Brooklyn, N. Y.
LIBERATI, AMERIGO M.	108 South Main St., Port Chester, N. Y.
MCGRATH, EDWIN F.	2485 Elm Pl., Bronx, N. Y.
MELI, FRED	1554 — 77th St., Brooklyn, N. Y.
NEUBERGER, WALTER B.	311 — 35th St., Woodcliff, N. J.
NEVINS, JOHN P.	625 Wilcox Ave., New York, N. Y.
PALUMBO, JOSEPH A.	232 Morning Star Road, Port Richmond, S. I., N. Y.
PODELL, LOUIS	617 West 152nd St., New York, N. Y.
POMERANTZ, ALVIN	615 Broad Ave., Ridgefield, N. J.
REIF, ELIAS H.	300 West 23rd St., New York, N. Y.
RICKMEYER, Jr., FREDERICK L.	Myrtle Ave. opp. 73rd Pl., Glendale, L. I., N. Y.
SAIA, CARROL A.	117 Third Pl., Brooklyn, N. Y.
SCHECHTMAN, ALBERT	2778 Valentine Ave., Bronx, N. Y.
SCHEPIS, NUNZIO	680 East 224th St., Bronx, N. Y.
SEINFELD, SAMUEL	2320 Aqueduct Ave., Bronx, N. Y.
SHIFFMAN, ISAAC	8678 Bay Parkway, Brooklyn, N. Y.
SILVERMAN, JACK K.	1882 Bathgate Ave., Bronx, N. Y.
STEEN, JACOB A.	22-38 — 41st St., Long Island City, N. Y.
STEIN, HAROLD H.	2950 East 2nd St., Brooklyn, N. Y.
SZABO, JOSEPH	525 East 82nd St., New York, N. Y.
TESSITORE, FRANK	1950 — 78th St., Brooklyn, N. Y.
WEISBURG, DAVE	1636 — 43rd St., Brooklyn, N. Y.

DESIGN

BATKA, Jr., JOSEPH	52-08 — 44th St., Laurel Hill, L. I., N. Y.
BECK, AARON H.	353 Montauk Ave., Brooklyn, N. Y.
BROZ, FRANK PETER	41-33 — 67th St., Winfield, L. I., N. Y.
CONNIN, LAWRENCE C.	39 Mercer St., Jersey City, N. J.
CURIONE, STANLEY P.	60-60 Putnam Ave., Ridgewood, L. I., N. Y.
DELICIO, STEPHEN	1071 — 76th St., Brooklyn, N. Y.
DITRANO, DOMENIC P.	1721 White Plains Road, New York, N. Y.
FREEMAN, HARRY	657 Cauldwell Ave., Bronx, N. Y.
HAMBURGER, EDWARD	32 Lenox Road, Brooklyn, N. Y.
LEON, DAVID ALBERT	1197 Grand Concourse, Bronx, N. Y.
LEPART, JOHN J.	153 Voss Ave., Yonkers, N. Y.
LUCIANI, DOMENICK A.	1601 West 2nd St., Brooklyn, N. Y.
MENNONA, ALFRED G.	106 Pocantico St., North Tarrytown, N. Y.
NEUER, OTTO	4101 — 67th St., Winfield, L. I., N. Y.
PFEUFER, WILLIAM G.	215 Audubon Ave., New York, N. Y.
POTENZA, SEBASTIAN J.	1468 — 84th St., Brooklyn, N. Y.
SEGALL, REVA D. (MISS)	87 Barrow St., New York, N. Y.
VICTOR, ALEXANDER	4100 — 43rd Ave., Sunnyside, L. I., N. Y.

ARCH.
1934

FREE HAND DRAWING

First Year

SECTION A

N. ART	ADAMS, BERT	822 Hewitt Pl., New York, N. Y.
1937	ANDINO, KATHERINE	545 West 156th St., New York, N. Y.
FHD	AYMAN, JOHN EDWARD	88-17 — 76th St., Woodhaven, L. I., N. Y.
	BARBER, CLARENCE H.	419 Adelphi St., Brooklyn, N. Y.
	BEACH, MARJORIE M.	165 North Oraton Parkway, East Orange, N. J.
	BERLIN, CARL	710 Foster Ave., Brooklyn, N. Y.
	BERMAN, BENNIE	732 Sackman St., Brooklyn, N. Y.
	BESWICK, JOHN E.	24 Harrison Ave., Garfield, N. J.
	BEUTEL, HOWARD	46 Beaver St., Brooklyn, N. Y.
	BLAUM, ANITA H.	209-70 — 112th Ave., Bellaire, L. I., N. Y.
	BLUMENTHAL, ELIZABETH	32-A Sutter Ave., Brooklyn, N. Y.
	BRILL, SYDELE	1440 Third Ave., New York, N. Y.
	BROMS, HAKON T.	12 Bay Ridge Pl., Brooklyn, N. Y.
	BROWN, PAUL E.	251 West 15th St., New York, N. Y.
	BYRNE, ROBERT E.	95-17 Liverpool St., Jamaica, N. Y.
	CAIN, CATHERINE	2664 Grand Concourse, New York, N. Y.
	CHECHICK, LOUIS	240 Broad St., Stapleton, S. I., N. Y.
	CIVIDANES, FRANCIS J.	145 Perry St. New York, N. Y.
	COHEN, MOLLY	465 Georgia Ave., Brooklyn, N. Y.
	CONOVER, SAM	150 Tory St., Corona, L. I., N. Y.
	COOPER, LYMAN B.	108-27 — 103rd St., Ozone Park, L. I., N. Y.
	COOPERMAN, MORTON	3335 Bouck Ave., New York, N. Y.
	COVIT, JOHN A.	30 East 28th St., New York, N. Y.
	CRAMBLITT, WALTER E.	8741 — 118th St., Richmond Hill, L. I., N. Y.
	CUNNINGHAM, JOY	320 West 105th St., New York, N. Y.
	DALLDORF, Jr., CHARLES J.	656 — 88th St., Brooklyn, N. Y.
	McBRIDE, LEILA	20 Sidney Pl., Brooklyn, N. Y.

SECTION B

N. ART	DANFORTH, MILDRED E.	11 West 10th St., New York, N. Y.
1937	DAVIS, EMANUEL	78 Barrett St., Brooklyn, N. Y.
FHD	DePUE, EVELYN M.	58-45 Vancleef St., Corona, L. I., N. Y.
	DeSANNA, ANTHONY F.	736 — 52nd St., Brooklyn, N. Y.
	EGDELL, NORMAN	556 West 191st St., New York, N. Y.
	ELKIND, BERNARD	160 Nepperham Ave., Yonkers, N. Y.
	ELLIS, GEORGE E.	679 Bergen Ave., Jersey City, N. J.
	ERIKSEN, GUSTAV A.	585 Hudson Ave., West New York, N. J.
	ERON, THEODORE	1 Amsterdam Ave., Passaic, N. J.
	EVANOFF, VLADIMIR T.	437 East 5th St., New York, N. Y.
	FAVERMAN, WILLIAM	67 West 192nd St., Bronx, N. Y.
	FAY, HUGH	196 Eldert Lane, Brooklyn, N. Y.
	FINK, JOSEPH SAUL	873 Stebbins Ave., Bronx, N. Y.
	FOX, JOSEPHINE	442 Barbey St., Brooklyn, N. Y.
	FRANZ, ARTHUR C.	6807 Fresh Pond Road, Brooklyn, N. Y.
	FRIEDMAN, ESTELLE	871 East 178th St., Bronx, N. Y.
	FRIEDMAN, JOSEPH	358 East 8th St., New York, N. Y.
	FYSCHER, FRED	1431 University Ave., New York, N. Y.
	GITTENS, ROBERT LEE	516 West 167th St., New York, N. Y.
	GOLD, BLANCHE	619 Casanova St., New York, N. Y.
	GOLDBERG, SIDNEY	96-04 Northern Blvd. Corona, L. I., N. Y.
	GOLDSTEIN, MORRIS	721 De Kalb Ave., Brooklyn, N. Y.
	GOODMAN, BLANCHE	67-17 Woodside Ave., Winfield, L. I., N. Y.
	GROSS, LESTER	1240 Walton Ave., Bronx, N. Y.
	GROSSMAN, LOUIS	106-11 — 150th St., Jamaica, N. J.
	HALL, Jr., ROBERT F.	724 — 35th St., North Bergen, N. Y.
	HALPERN, BENJAMIN J.	1272 Noble Ave., New York, N. Y.
	HAYLE, SAMUEL L.	530 West 136th St., New York, N. Y.
	KESTER, LEONARD	1201 Ave. K., Brooklyn, N. Y.
	SIMRING, MIRIAM	7202 — 21st Ave., Brooklyn, N. Y.

SECTION C

GOLDBERG, NAOMI.....	454 Third St., Brooklyn, N. Y.	N. ART
HERZOG, HARRY A.....	194-12 — 113th Road, St. Albans, L. I., N. Y.	1937
HOFFMANN, GERDA G.....	65 — 10th St., Hoboken, N. J.	FHD
HOLMES, MADELINE.....	8 Bonn Pl., Weehawken, N. J.	
HOROWITZ, LILLIAN.....	1066 Winthrop St., New York, N. Y.	
HOROWITZ, OSCAR.....	630 — 9th Ave., New York, N. Y.	
HOWE, AUGUSTINE F.....	475 — 83rd St., Brooklyn, N. Y.	
HUDDLESON, DOROTHY C.....	4843 — 47th St., Woodside, L. I., N. Y.	
HULIHAN, FREDERICK.....	875 President St., Brooklyn, N. Y.	
IHLENBURG, RUTH A.....	183 Etna St., Brooklyn, N. Y.	
JOHANNY, ARNOLD F.....	103 Park Ave., Dumont, N. J.	
JOSEPH, JUSTIN W.....	583 Riverside Drive, New York, N. Y.	
JUELLE, ALBERT J.....	105 Clarke Pl., Bronx, N. Y.	
JUNG, JEANNETTE M.....	9026 Hollis Court Blvd., Queens Village, L. I., N. Y.	
KARP, MANUEL A.....	1437 Gates Ave., Brooklyn, N. Y.	
KASSOY, BERNARD.....	505 East 140th St., New York, N. Y.	
KEARNEY, MARY B.....	219-29 Edgewood St., Springfield Gardens, L. I., N. Y.	
KILLAM, FRED G.....	26 West 67th St., New York, N. Y.	
KOSAKOFF, DAVID.....	964 Forest Ave., Bronx, N. Y.	
KRIETE, FRANK M.....	812 Leland Ave., Plainfield, N. J.	
LATHROPE, ALLEN.....	20 Constant Ave., West Brighton, S. I., N. Y.	
LEA, WESLEY A.....	356 West 34th St., New York, N. Y.	
LEDERMAN, BENJAMIN.....	194 Floyd St., Brooklyn, N. Y.	
LEOTTA, SAMUEL S.....	616 West 204th St., New York, N. Y.	
LEWIS, JAMES T.....	116 Willett Ave., Port Chester, L. I., N. Y.	
LINDAUER, HERBERT S.....	125 Hoff St., Brooklyn, N. Y.	
LOPEZ, MANUEL J.....	615 Prospect Pl., Brooklyn, N. Y.	
McGEE, JOHN R.....	182 Dwight St., Jersey City, N. J.	
SCHLOEDER, FRED L.....	1071 — 72nd St., Brooklyn, N. Y.	

SECTION D

LUBIN, DAVID.....	2575 Pitkin Ave., Brooklyn, N. Y.	N. ART
MacDONALD, JAMES S.....	306 West 93rd St., New York, N. Y.	1937
MALCOLM, ALEXANDER.....	4213 — 79th St., Elmhurst L. I., N. Y.	FHD
MANDOLINI, PETER E.....	2115 Linden St., Ridgewood, N. Y.	
MASCH, ALFRED J.....	20 LaSalle Ave., Hasbrouck Heights, N. J.	
MAY, GEORGE J.....	228 East 236th St., Bronx, N. Y.	
McCABE, JAMES A.....	130 Post Ave., New York, N. Y.	
McGILL, ISABEL P.....	37-42 — 73rd St., Jackson Heights, L. I., N. Y.	
McGOVERN, EDWARD P.....	390 Princeton Ave., Jersey City, N. J.	
MEDNIK, PHYLLIS.....	375 Ashford St., Brooklyn, N. Y.	
MELHADO, ALLAN.....	117 East 115th St., New York, N. Y.	
MENDELL, JEROME L.....	41 Eastern Parkway, Brooklyn, N. Y.	
MESICK, EBBIE A.....	740 Manida St., Bronx, N. Y.	
METZ, LeROY W.....	200 Victory Blvd., Tompkinsville, S. I., N. Y.	
MILLER, FLORENCE.....	2754 Grand Concourse, New York, N. Y.	
MOGLANSKY, BENJAMIN.....	236 East 91st St., Brooklyn, N. Y.	
MURRAY, LOUIS.....	285 East 142nd St., Bronx, N. Y.	
NORKIN, SAMUEL.....	694 Belmont Ave., Brooklyn, N. Y.	
NOVICK, ESTEL.....	1538 Ocean Parkway, Brooklyn, N. Y.	
NOVIS, HAROLD.....	6801 — 19th Ave., New York, N. Y.	
PANICA, LOUIS C.....	190 Montauk Ave., Brooklyn, N. Y.	
PASSALACQUA, SALVATORE.....	179 East Houston St., New York, N. Y.	
PEDDY, ARTHUR.....	9808 Flatlands Ave., Brooklyn, N. Y.	
PERRY, JOHN MITCHELL.....	107-80 — 101st St., Ozone Park, L. I., N. Y.	
RAFFO, STEPHEN A.....	104 Oak St., Weehawken, N. J.	

SECTION E

FOGEL, JONAS H.....	158 Webster Ave., Brooklyn, N. Y.	N. ART
KAUFMAN, JOSEPH.....	71 Vermilyea Ave., New York, N. Y.	1937
KRAMER, CHARLES J.....	1678 Woodbine St., Brooklyn, N. Y.	FHD
PEREZ, ARHAN A.....	65 Cranberry St., Brooklyn, N. Y.	
PETERSEN, JOHN.....	2856 West 16th St., Brooklyn, N. Y.	
PHILLIPS, EDITH V.....	134 West 15th St., New York, N. Y.	

PICKHARDT, HERBERT D.	25 Highland Ave., Yonkers, N. Y.
PIDVIRNY, JOHN	1138 Longfellow Ave., Bronx, N. Y.
PILIPSKY, LAWRENCE N.	2539 Holland Ave., Bronx, N. Y.
PINTER LOUIS	217 East 81st St., New York, N. Y.
POMERANTZ, EDITH	2700 Bronx Park East, New York, N. Y.
PONS, WILFRED F.	1520 Broadway, Brooklyn, N. Y.
POUST, JAMES	10-39 — 115th St., College Point, N. Y.
PUVOGEL, NORMA T.	91 Grand Ave., Elmhurst L. I., N. Y.
RABINOWITZ, DOROTHY M.	95 Howe Ave., Passaic, N. J.
RABINOWITZ, ISIDORE	540 East 84th St., New York, N. Y.
RADOCZY ALBERT W.	36-03 — 23rd Ave., Long Island City, N. Y.
RAVITZ, NORMAN	216 Neck Road, Brooklyn, N. Y.
REEVES, KENNETH R.	655 West 190th St., New York, N. Y.
REIF, RUBIN I.	7217 — 3rd Ave., Brooklyn, N. Y.
REYNOLDS, LILLIAN M.	43-10 — 48th Ave., Woodside, L. I., N. Y.
RICHARDS, HERBERT M.	125 Everett Pl., East Rutherford, N. J.
ROBERTS, LUCY M.	629 W. 135th St., New York, N. Y.
ROSE, WILLIAM	710 Westchester Ave., New York, N. Y.
ROSENBERG, HERMAN	1660 — 60th St., Brooklyn, N. Y.
ROSENBERG, MORRIS H.	710 West 173rd St., New York, N. Y.
ROWE, JOHN E.	237 — 31st St., Woodcliff, N. J.
SALZMAN, WILLIAM M.	355 East 46th St., Brooklyn, N. Y.
SAMUELS, SYDNEY R.	796 East 166th St., Bronx, N. Y.
SCHERB, GUSTAVE A.	318 Crescent St., Long Island City, N. Y.
SERATING, ABRAHAM	565 West 174th St., New York, N. Y.
SHAPIRO, GEORGE M.	70-02 Amstel Blvd., Arverne, L. I., N. Y.
SHEARER, MILDRED	1746 East 7th St., Brooklyn, N. Y.

SECTION F

N. ART	CALAMARAS, HELENE	235 East 12th St., New York, N. Y.
1937	FINK, LILY	881 Eighth Ave., New York, N. Y.
FHD	GIORGIANI, JOHN J.	204 East 115th St., New York, N. Y.
	LEVENTHAL, GEORGE P.	241 Amherst St., Brooklyn, N. Y.
	NOBLE, NICHOLAS T.	58-11 Penrod St., Corona Terrace, L. I., N. Y.
	SCHWARTZ, FRED P.	1530 Sheridan Ave., Bronx, N. Y.
	SHELTON, JOHN J.	602 West 188th St., New York, N. Y.
	SHERWOOD, VIOLA M.	51 Weston St., Nutley, N. J.
	SHOPPER, ANN	314 East 101st St., New York, N. Y.
	SHPRITZER, PHILIP	Y.M.H.A., 92nd St. and Lexington Ave., New York, N. Y.
	SMILARI, LIVIO	7 Park Ave., New York, N. Y.
	SPANGLET, HARRY	1015 Trinity Ave., New York, N. Y.
	SPECTOR, JULIUS J.	2821 Briggs Ave., Bronx, N. Y.
	SPOTO, MICHAEL G.	753 East 226th St., New York, N. Y.
	STEIN, RICHARD G.	120 West 70th St., New York, N. Y.
	STOCK, JACK H.	138 Moore St., Brooklyn, N. Y.
	STONE, DANIEL	1957 — 67th St., Brooklyn, N. Y.
	STONE, IRVING E.	1421 Madison Ave., New York, N. Y.
	SUSSMAN, RUBIN	1218 Boynton Ave., Bronx, N. Y.
	TECKYOW, CALVIN	963 Prospect Ave., Bronx, N. Y.
	TIERNEY, WILLIAM J.	207 Ave. T., Brooklyn, N. Y.
	TOONE, WINIFRED I.	254 Covert St., Brooklyn, N. Y.
	TOUBY, NATHAN N.	574 East 4th St., Brooklyn, N. Y.
	VASKU, VICTORIE K.	544 East 89th St., New York, N. Y.
	WALD, MORRIS	19 Vermilyea Ave., New York, N. Y.
	WALSH, MARJORIE P.	8320 Pettit Ave., Elmhurst Ave., L. I., N. Y.
	WEINTRAUBE, SYDNEY	241 Powell St., Brooklyn, N. Y.
	WEISS, IRVING H.	1718 Washington Ave., Bronx, N. Y.
	WHITEFORD, FRANK S.	2148 — 35th St., Astoria, L. I., N. Y.
	WINNICK, JACK	661 Flushing Ave., Brooklyn, N. Y.
	ZOTZMANN, RICHARD A.	1165 Gerard Ave., New York, N. Y.

Second Year SECTION A

N. ART	AGLIANO, BENJAMIN V.	129 Coffey St., Brooklyn, N. Y.
1936	BERNSTEIN, RALPH	92 Tapscott St., Brooklyn, N. Y.
FHD	BLOCK, MILTON A.	543 Claremont Parkway, New York, N. Y.

BOMBARD, HOWARD A.....129 East 109th St., New York, N. Y.
 BONSER, WILLIAM D.....59 Middleton St., Brooklyn, N. Y.
 BORUCH, FRANK.....19 East 21st St., Bayonne, N. J.
 BOURDON, ZYGMUND J.....3148 — 36th St., Long Island City, N. Y.
 BRILL, ARTHUR.....715 Ave. K, Brooklyn, N. Y.
 BROWN, SANFORD B.....913 — 57th St., Brooklyn, N. Y.
 CANALES, ARIEL.....25 Fort Washington Ave., New York, N. Y.
 CARLSON, LYDIA I.....979 Summit Ave., Bronx, N. Y.
 CLAPP, NAOMI G.....1402 Clay Ave., New York, N. Y.
 CONZANI, ANNA M.....193 Essex St., Brooklyn, N. Y.
 COOPER, MILTON H.....2380 Creston Ave., Bronx, N. Y.
 CUOMO, GUY J.....426 West 160th St., New York, N. Y.
 DeLORENZO, MAURICE T.....8103 — 5th Ave., Brooklyn, N. Y.
 DERMODY, JOHN T.....419 — 16th St., Brooklyn, N. Y.
 DEVER, Jr., HUGH A.....8804 Commonwealth Blvd., Bellrose, L. I., N. Y.
 DUCKER, AARON.....1569 Prospect Pl., Brooklyn, N. Y.
 DWYER, VINCENT H.....3723 — 92nd St., Jackson Heights, L. I., N. Y.
 EVANS, WILLIAM B.....115 Wayne St., Jersey City, N. J.
 GOLDEN, MARY T.....41-29 — 160th St., Flushing, L. I., N. Y.
 O'NEAL, OLIVE S.....9516 — 111th St., Richmond Hill, L. I., N. Y.
 VOGEL, RAY H.....1311 College Ave., Bronx, N. Y.

SECTION B

BAUER, MAX M.....482 East 142nd St., New York, N. Y.
 LAUFER, THOMAS.....68-06 — 37th Road, Woodside, L. I., N. Y.
 MANFREDI, NICHOLAS.....2427 Belmont Ave., Bronx, N. Y.
 MARCUS, ALBERT.....2865 University Ave., Bronx, N. Y.
 McGUILL, HORACE J.....78 Cottage St., Midland Park, N. J.
 McNUTT, HARRIET H.....443 — 95th St., Brooklyn, N. Y.
 MULLIGAN, JOHN F.....87 Summit Ave., Jersey City, N. J.
 NAKOS, STEPHEN.....243 East 18th St., New York, N. Y.
 NEMIROFF, LEON.....205 Powell St., Brooklyn, N. Y.
 NESTOR, JEAN HELEN.....48 Stuyvesant St., New York, N. Y.
 NICOSIA, FRANK R.....2069 West 13th St., Brooklyn, N. Y.
 OSBORNE, JOHN F.....33 Vanderbeck Pl., Hackensack, N. J.
 OSTUNI, PETER W.....4310 Richardson Ave., New York, N. Y.
 PATES, HELEN C.....4107 New Utrecht Ave., Brooklyn, N. Y.
 PELEGRI, EMIL G.....252 Grove St., Brooklyn, N. Y.
 PELIKOW, CLARA.....57 Second Ave., New York, N. Y.
 PEPPERMAN, SAM.....120 Lynch St., Brooklyn, N. Y.
 PERLMAN, MIRIAM.....703 Howard Ave., Brooklyn, N. Y.
 PFEUFER, JAMES.....215 Audubon Ave., New York, N. Y.
 PHYSIOC, FRANCES F.....144 West 16th St., New York, N. Y.
 REICH, SYDNEY H.....693 Logan St., Brooklyn, N. Y.
 REISIG, MABEL F.....123 West 13th St., New York, N. Y.
 ROSEN, DAVID.....911 East 176th St., Bronx, N. Y.
 SCHLEIN, FRIEDA B.....129 Rivington St., New York, N. Y.
 SIEGEL, EDWARD.....204 Keap St., Brooklyn, N. Y.
 STEELE, YVONNE E.....44 Merritt Ave., Tuckahoe, N. Y.
 TIANO, ISAAC J.....163 Eldridge St., New York, N. Y.

N. ART
 1936
 FHD

SECTION C

FERGUSON, Jr., ARTHUR J.....334 Ninth Ave., New York, N. Y.
 FIX, EUGENE H.....960 Prospect Ave., New York, N. Y.
 FRAM, LEAH.....55 Winthrop St., Brooklyn, N. Y.
 FUTUYMA, ROMAN J.....597 East 164th St., Bronx, N. Y.
 GELMAN, WOODROW W.....1606 President St., Brooklyn, N. Y.
 GIBBONS, JOHN T.....2505 University Ave., Bronx, N. Y.
 GITTLEMAN, SAM.....344 Beekman Ave., New York, N. Y.
 GOLD, RITA M.....155 Second Ave., New York, N. Y.
 GOLDBERG, LESTER.....349½ South Broadway, Yonkers, N. Y.
 GOLDBERG, SELMA M.....1244 Grant Ave., New York, N. Y.
 GOTSCHKE, CARL A.....4339 — 39th Pl., Long Island City, N. Y.
 GREENBAUM, LOUIS.....1379 Bristow St., Bronx, N. Y.
 HARING, ALBERT C.....River Road, Shadyside, N. J.
 HAYES, EDNA M.....9713 — 75th St., Ozone Park, L. I., N. Y.

N. ART
 1936
 FHD

HELBIG, GOUVERNEUR F.	21 Perry St., New York, N. Y.
HERD, DONALD N.	3820 — 52nd St., Sunnyside, L. I., N. Y.
INSINNA, MICHAEL	82 President St., Passaic, N. J.
KADISON, GRACE J.	2092 Davidson Ave., New York, N. Y.
KAGAN, SAMUEL A.	198 Jersey St., Staten Island, N. Y.
KAHANER, WALTER	1687 Park Pl., Brooklyn, N. Y.
KAMMEL, ROBERT J.	46 Hudson Ave., Edgewater, N. J.
KASAZKOW, BENJAMIN J.	2439 Barker Ave., Bronx, N. Y.
KAZENWADEL, FRED R.	221 East 95th St., New York, N. Y.
KESTER, MELVIN	1517-A West 12th St., Brooklyn, N. Y.
LANGER, ROBERT I.	1750 Van Buren St., New York, N. Y.

SECTION D

N. ART	HOCHTHEIL, ALFRED	1472 Wilkins Ave., New York, N. Y.
1936	JACOBSON, LEON	665 Burke Ave., New York, N. Y.
FHD	KIRISHJIAN, VAHE	6738 — 6th Ave., Brooklyn, N. Y.
	KLEIGER, HARRY M.	915 Elsmere Pl., Bronx, N. Y.
	LAIKEN, DAVID M.	132-09 Maple Ave., Flushing, L. I., N. Y.
	OKEN, MURRAY	26 Jefferson St., New York, N. Y.
	PISARK, HYMAN	145 Floyd St., Brooklyn, N. Y.
	SARLIN, LOUIS	371 Rodney St., Brooklyn, N. Y.
	SAXON, BERNARD	692 West 204th St., New York, N. Y.
	SCHNEEBERG, WILLIAM J.	416 East 28th St., Brooklyn, N. Y.
	SCHWARTZKOPF, WILLIAM F.	318 14th St., West New York, N. J.
	SINGER, STANLEY	1104 Elder Ave., Bronx, N. Y.
	SPIELER, RUTH	2085 Walton Ave., Bronx, N. Y.
	SPURLING, JULIAN R.	295 Huguenot St., New Rochelle, N. Y.
	STEIN, WALTER	862 Kelly St., Bronx, N. Y.
	SUTO, AKOS	501 West 139th St., New York, N. Y.
	TARCHER, ABRAHAM J.	426 Foster Ave., Brooklyn, N. Y.
	TEMPEL, NATHAN I.	864 East 149th St., New York, N. Y.
	TEPPER, SOL	1859 — 73rd St., Brooklyn, N. Y.
	VALDES, ADOLPH J.	2362 Lyon Ave., Bronx, N. Y.
	VERMAN, WILLIAM	610 East 191st St., Bronx, N. Y.
	WEBER, SAMUEL S.	231 Palisade Ave., Union City, N. J.
	WHEELER, LAWRENCE P.	164 Columbia Heights, Brooklyn, N. Y.
	WICKHAM, WILLIAM F.	1-A Stegman Terrace, Jersey City, N. J.
	WOODEN, ROSE	245 East 25th St., New York, N. Y.
	WRIGHT, JOSEPH R.	22 Duncan Ave., Jersey City, N. J.
	ZEVELOFF, LEO L.	552 Shepherd Ave., Brooklyn, N. Y.

Third Year SECTION A

N. ART	BERNSTEIN, JULIUS V.	993 Union Ave., Bronx, N. Y.
1935	BJERKE, OTTO C.	8709 Fifth Ave., Brooklyn, N. Y.
FHD	BLECKER, HERON	570 Ralph Ave., Brooklyn, N. Y.
	CHAMPAGNE, CHARLES H.	473 St. Johns Pl., Brooklyn, N. Y.
	CORDARO, JOSEPH J.	77 East 3rd St., New York, N. Y.
	CURTIN, EDWARD J.	171 West 81st St., New York, N. Y.
	D'ESPOSITO, GEORGE	272 Sumpter St., Brooklyn, N. Y.
	DREIBLATT, MILTON L.	264 East Second St., New York, N. Y.
	DWORETSKY, BEN.	334 Montgomery St., Brooklyn, N. Y.
	ECCHER, ALEXANDER A.	97 — 15th St., Brooklyn, N. Y.
	EISELE, WALTER W.	679 Eagle Ave., Bronx, N. Y.
	FIORITO, BASIL	38 McDougal St., New York, N. Y.
	FRATTINI, ALDO C.	1062 Rhinelander Ave., Bronx, N. Y.
	GALLAGHER, JOHN F.	77 Winter St., Lynbrook, N. Y.
	GALLO, VITO A.	3410 — 61st St., Woodside, L. I., N. Y.
	GARATTI, ARTHUR J.	90 Bedford St., New York, N. Y.
	NUMEROFF, WILLIAM J.	291 East 51st St., Brooklyn, N. Y.

SECTION B

N. ART	DINGILIAN, DIKRAN A.	601 West 184th St., New York, N. Y.
1935	GLENUM, HARRY	323 West 4th St., New York, N. Y.
FHD	GOLD, RALPH F.	486 Williams Ave., Brooklyn, N. Y.
	GOLDBERG, CARL	1785 Prospect Ave., Bronx, N. Y.

GOLDSTEIN, IRVING M.	356 South 1st St., Brooklyn, N. Y.
GOLDSTEIN, JACOB	3039 Wallace Ave., New York, N. Y.
GORLACH, EDMUND T.	3220 Steuben Ave., Bronx, N. Y.
GRIFFITH, HERBERT T.	311 East 72nd St., New York, N. Y.
HALLEX, JOHN R.	312 Palmetto St., Brooklyn, N. Y.
KENDALL, JOHN V.	412 — 73rd St., Brooklyn, N. Y.
KOELLE, Jr., EUGENE W.	361 Weirfield St., Brooklyn, N. Y.
KOZAK, KARL J.	352 East 84th St., New York, N. Y.
KUBISTA, HENRY R.	1683 First Ave., New York, N. Y.
MEYROWITZ, MORRIS	1026 — 48th St., Brooklyn, N. Y.
PUCCIO, JOHN J.	821 Willoughby Ave., Brooklyn, N. Y.
ROBERTSON, HARRY C.	101 South 3rd St., Brooklyn, N. Y.
ROGERS, WALTER C.	413 — 82nd St., Brooklyn, N. Y.
ROSENBERG, SIDNEY	1638 — 66th St., Brooklyn, N. Y.
SALMIERI, FRANK J.	373 — 12th St., Brooklyn, N. Y.

SECTION C

ECKERT, GILBERT H.	1190 Clay Ave., Bronx, N. Y.
KRIPPENDORF, KINGDON	164 Wood-Ridge St., Wood-Ridge, N. J.
LANDRIO, EUGENE	9-18 — 34th Ave., Long Island City, N. Y.
LATHAM LOUIS E.	111 Sanford Pl., Jersey City, N. J.
LEGGIO, JAMES	46 Lewis Ave., Brooklyn, N. Y.
MALMET, HARRY C.	580 Maple St., Brooklyn, N. Y.
MEHLMAN, BERNARD	214 Echo Pl., Bronx, N. Y.
MOTT, ELMER J.	111-25 Jamaica Ave., Richmond Hill, L. I., N. Y.
PADEREWSKI, JOSEPH	4310 — 15th St., Brooklyn, N. Y.
PARADES, JOSEPH R.	230 East 43rd St., New York, N. Y.
PEARLMAN, JOSEPH	8001 Fort Hamilton Parkway, Brooklyn, N. Y.
PELTOLA, YARMA	263 Longworth Ave., Hasbrouck, Heights, N. J.
SAUERWALD, FRED W.	1024 Halsey St., Brooklyn, N. Y.

N. ART
1935
FHD

SECTION D

BEAGAN, PAUL F.	311 Vreeborn St., Woodland Terrace, S. I., N. Y.
LINDE, ALFRED A.	151 Lexington Ave., New York, N. Y.
SCHWARTZ, OSIAS	208 Eldridge St., New York, N. Y.
SHEINMAN, IRVING	1503 Charlotte St., Bronx, N. Y.
SKOLNIK, JACK P.	827 Union Ave., Bronx, N. Y.
SOLIMANDO, PATSY	2325 Beaumont Ave., Bronx, N. Y.
SPAGNOLO, FRANK	1841 Bronxdale Ave., Bronx, N. Y.
STEINMAN, LOUIS	625 Hemlock St., Brooklyn, N. Y.
TRAGERMAN, MORRIS	1014 Jennings St., New York, N. Y.
TUCCI, PETER C.	46 Exchange Pl., Port Chester, N. Y.
WEINSTEIN, MARCUS	662 Jersey Ave., Jersey City, N. J.
WEISBACH, JACK	1103 Myrtle Ave., Brooklyn, N. Y.
WERNER, ALBERT	214 Audubon Ave., New York, N. Y.
WILSON, HENRY	193 Monroe St., New York, N. Y.
WYATT, DAVID C.	2890 West 8th St., Brooklyn, N. Y.

N. ART
1935
FHD

Fourth Year SECTION A

BERNSTEIN, ALBERT	2265 Grand Ave., Bronx, N. Y.
BERNSTEIN, WILLIAM	601 West 175th St., New York, N. Y.
BOBAT, ALBERT C.	1562 Hoe Ave., Bronx, N. Y.
CARISTIA, JOSEPH J.	77 St. Marks Place, New York, N. Y.
COHEN, IRVING	2139 Grand Ave., Bronx, N. Y.
COOPERSTEIN, HYMAN J.	926 Southern Blvd., Bronx, N. Y.
DE BENEDETTO, ANGELO M.	31 Hoxey St., Paterson, N. J.
DEJERENIS, CHRISTY	206 East 96th St., New York, N. Y.
DIETZSCH, ALFRED	250 Stockholm St., Brooklyn, N. Y.
ESPOSITO, THEODORE M.	37 Westervelt Place, Jersey City, N. J.
FINE, SAMUEL	205 Powell St., Brooklyn, N. Y.
FLEISS, HYMAN	223 South 9th St., Brooklyn, N. Y.

N. ART
1934
FHD

SECTION B

GAMACHE MAURICE L.	114 Garfield Pl., Brooklyn, N. Y.
JOCHER, GEORGE A.	247-26 — 89th Ave., Bellerose, L. I., N. Y.
KAMMERER, LOUIS H.	6624 — 74th St., Middle Village, L. I., N. Y.

N. ART
1934
FHD

KAPLAN, ALBERT M.	41 Church St., Paterson, N. J.
KERTOK, WILLIAM	86-25 — 103 rd Ave., Ozone Park, L. I., N. Y.
KLEIN, ABRAHAM	1291 Hoe Ave., New York, N. Y.
KLEIN, HENRY	1417 Crotona Ave., Bronx, N. Y.
KLEIN, SIDNEY J.	1421 University Ave., Bronx, N. Y.
KOMITO, SOLOMON	1841 — 65th St., Brooklyn, N. Y.
LESLIE, NICHOLAS W.	969 Whitlock Ave., New York, N. Y.
LUZZATTO, JACK	2825 Wellman Ave., Bronx, N. Y.
MARMER, CARL	139 Bay 38th St., Brooklyn, N. Y.

SECTION C

N. ART	ANTINORI, SANTO P.	315 East 12th St., New York, N. Y.
1934	MASSA, ADOLPH N.	31 Holly Ave., Mineola, L. I., N. Y.
FHD	MATHEWSON, THEODORE	14 Intervale Pl., Yonkers, N. Y.
	OWEN, HARRY	66 Glenwood Ave., Leonia, N. J.
	PARISI, PETER R.	356 East 12th St., New York, N. Y.
	PAUL, JOSEPH	3454 — 59th St., Woodside, L. I., N. Y.
	RABUZZO, ANTHONY	1712 West 13th St., Brooklyn, N. Y.
	RAU, HERBERT WILLIAM	10 East 40th St., Bayonne, N. J.
	RECHER, MAXIMILIAN R.	176-01 — 90th Ave., Jamaica, L. I., N. Y.
	RONDA, STANLEY A.	771 St. Ann's Ave., Bronx, N. Y.
	ROSE, RICHARD	42 East 76th St., New York, N. Y.
	ROYEK, CHARLES J.	120 West 89th St., New York, N. Y.
	RUGGIANO, EMILIO	2116 Crotona Parkway, New York, N. Y.

SECTION D

N. ART	DODES, MORTIMER	2144 West 6th St., Brooklyn, N. Y.
1934	MEDIAVILLA, LEOPOLD J.	457 West 164th St., New York, N. Y.
FHD	SCHNEE, MILTON	103 Ave. A., New York, N. Y.
	SHAW, Jr., ALBERT A.	75 Hazelton St., Ridgely Park, N. J.
	SIMPSON, ROBERT B.	317 East Clay Ave., Roselle Park, N. J.
	SLUTER, MELVIN	776 East 46th St., Brooklyn, N. Y.
	SMILKSTEIN, HARRY	105 Manchester Terrace, Mt. Kisco, N. Y.
	STEINMAN, LOUIS	1702 President St., Brooklyn, N. Y.
	TABISEL, SOL	920 St. Johns Ave., Bronx, N. Y.
	TRICK, ERICH	4222 — 64th St., Woodside, L. I., N. Y.
	VOHS, HARRY J.	124-10 Blake Ave., South Ozone Park, L. I., N. Y.
	WENGER, FRANK	120 Suffolk St., New York, N. Y.

Advanced Commercial Design

SECTION A

N. ART	ANNENBERG, MORTON	939 Longwood Ave., New York, N. Y.
1934	AVIDAN, EVELYN	583 Riverside Drive, New York, N. Y.
ACD	BINNIE, JOHN FORBES	504 West 135th St., New York, N. Y.
	BIRNSTEIN, ALFRED	60-74 Flushing Ave., Maspeth, L. I., N. Y.
	BLACK, MARION A.	4106 Ave. P., Brooklyn, N. Y.
	BLANK, MATTHEW B.	30 East Pl., New York, N. Y.
	BRONSTEIN, BEN	1739 — 63rd St., Brooklyn, N. Y.
	CHIANI, ARTHUR ROY	3924 — 28th St., Long Island City, N. Y.
	CICCARELLI, LUCY	337 East 116th St., New York, N. Y.
	COLABELLI, ALBERT	152 Scotland Road, Orange, N. J.
	DE MELIO, MARGARET AGNES	1181 Tinton Ave., New York, N. Y.
	DIESNER, EDWARD STANLEY	1406 Webster Ave., Bronx, N. Y.
	DOMMEYER, HERMAN N.	1498 — 3rd Ave., New York, N. Y.
	EHRlich, HARRY	1219 Neck Road, Brooklyn, N. Y.
	EHRlich, RUDOLPH	76 Essex St., Brooklyn, N. Y.
	FEUER, HELEN FRANCES	558 East 2nd St., Brooklyn, N. Y.
	FRIEDHOFFER, SADIE	1548 Bryant Ave., Bronx, N. Y.
	FRIEDMAN, HARRY	413 East 84th St., New York, N. Y.
	FRIEDMAN, HELEN C.	1589 East 2nd St., Brooklyn, N. Y.
	GARDNER, VICTOR J.	106-09 New York Ave., Jamaica, L. I., N. Y.
	HAAS, FRANK AUGUSTA	317 East 71st St., New York, N. Y.
	HALLERAN, LAWRENCE E.	32-45 — 200th St., Bayside, L. I., N. Y.
	HERBERT, JOHN ELLSWORTH	9527 — 102nd St., Ozone Park, L. I., N. Y.
	HOCHBERG, ANNA	903 — 43rd St., Brooklyn, N. Y.
	HOLM, WILLIAM ERNEST	201 Rathbun Ave., Annadale, S. I., N. Y.
	ISAACSON, HARRY	1540 — 40th St., Brooklyn, N. Y.
	IZZO, LOUIS JOSEPH	1049 — 73rd St., Brooklyn, N. Y.

KABAT, IRVING.....	759 Bryant Ave., Bronx, N. Y.
KRACKOW, LOUIS W.....	185 Ave. P., Brooklyn, N. Y.
KRIEFSFIELD, MAX.....	318 Van Sicklen Ave., Brooklyn, N. Y.
KRIKOWSKI, EDWARD H.....	61-27 — 165th St., Flushing, L. I., N. Y.
LEIBOWITZ, ROSE.....	1951 Coney Island Ave., Brooklyn, N. Y.
LESSER, HAROLD.....	1252 Manor Ave., New York, N. Y.
MALPAS, JOHN IRWIN.....	41 Baldwin St., Bloomfield, N. J.
MALY, FRANCES MARIE.....	4729 — 44th St., Woodside, L. I., N. Y.

SECTION B

MANCUSO, EDISON.....	86-33 57th Ave., Elmhurst, L. I., N. Y.	N. ART
MANSFIELD, JOSEPH RICHARD.....	640 Lafayette Ave., Brooklyn, N. Y.	1934
MARTE, ALOIS A.....	130 East 3rd St., New York, N. Y.	ACD
MATER, PAULINE E.....	60 Gates Ave., Jersey City, N. J.	
MATREJEK, ELEANOR M.....	324 58th St., Brooklyn, N. Y.	
MEISTER, HARRY.....	117 Liberty Ave., Brooklyn, N. Y.	
MENGHINI, LEO.....	90-12 50th Ave., Elmhurst, L. I., N. Y.	
O'MEALY, HOWARD A.....	4633 Carpenter Ave., Bronx, N. Y.	
RAIMONDI, EDWARD E.....	277 New York Ave., Union City, N. J.	
RAINS, JULIAN IRA.....	8701 Shore Road, Brooklyn, N. Y.	
RAZZORE, MARIO JOHN.....	219 Degraw St., Brooklyn, N. Y.	
RHODES, JOHN.....	1479 60th St., Brooklyn, N. Y.	
ROCHMAN, TESS B.....	2138 31st St., Astoria, L. I., N. Y.	
ROESSNER, LEONARD N.....	136 Crystal St., Brooklyn, N. Y.	
ROSSMAN, ELSIE.....	331 East 13th St., New York, N. Y.	
SAPIENZA, SAMUEL.....	133 7th St., New York, N. Y.	
SINGER, NAT.....	1235 Ward Ave., New York, N. Y.	
SNYDER, JACK VINCENT.....	7901 4th Ave., Brooklyn, N. Y.	
STANKOWITZ, ARTHUR J.....	1071 Jefferson Ave., Brooklyn, N. Y.	
STEINBERG, HYMAN H.....	336 Throop Ave., Brooklyn, N. Y.	
STERN, JENNIE.....	593 Stone Ave., Brooklyn, N. Y.	
SWEETEN, ELIZABETH R.....	2033 East 19th St., Brooklyn, N. Y.	
SZALAY, LOUIS.....	93 Lakeview Ave., Clifton, N. J.	
TARLOFF, FANNIE.....	63 West End Ave., Brooklyn, N. Y.	
TROISI, MORRIS P.....	188 8th Ave., New York, N. Y.	
WADE, PETER JOHN.....	335 Gregory Ave., Passaic, N. J.	
WEITZMAN, SOL.....	303 Throop Ave., Brooklyn, N. Y.	
ZELENKA, VINCENT F.....	84 Westervelt Place, Passaic, N. J.	
ZVACS, JOSEPH LEON.....	615 West 152nd St., New York, N. Y.	

Advanced Costume Design

BEREZOV, MAURICE.....	215 West 13th St., New York, N. Y.	N. ART
BROWN, RUTH D.....	1478 Southern Blvd., New York, N. Y.	1934
CAREW, ANGELA M.....	56 Poplar Ave., Silver Beach, N. Y.	ACD
CARNEY, CATHERINE T.....	2719 Sedgwick Ave., Bronx, N. Y.	
CENTNER, JULIET.....	304 East 183rd St., Bronx, N. Y.	
EICHIN, MARY E.....	396 Columbus Blvd., Woodridge, N. J.	
GOULD, ALICE H.....	940 East 174th St., New York, N. Y.	
KNUST, MAY JUNE.....	81 North 19th St., East Orange, N. J.	
LEMCHEN, HELEN.....	768 Boulevard, Bayonne, N. J.	
LUGSCHEIDER, FRANCES J.....	260 West 231st St., New York, N. Y.	
MERZON, SHIRLEY.....	2545 Olinville Ave., Bronx, N. Y.	
MITCHELL, HAZEL L.....	662 61st St., Brooklyn, N. Y.	
MONZA, ELSIE P.....	3850 Cannon Place, Bronx, N. Y.	
NORBY, EVELYN M.....	3002 Avenue K, Brooklyn, N. Y.	
OTTOMAN, CLARISSA J.....	226 Barbey St., Brooklyn, N. Y.	
PAULSON, MADELINE R.....	41 Hubbard Place, Brooklyn, N. Y.	
RUSSO GAETANO.....	56 Goerck St., New York, N. Y.	
SCHEIN, GERTRUDE.....	695 East 139th St., Bronx, N. Y.	
SCHWARTZ, SYLVIA.....	1400 Clinton Ave., Bronx, N. Y.	
SCOTT, EARLE C.....	409 Edgecombe Ave., New York, N. Y.	
SOLOMON ELEANOR R.....	160 W. Kingsbridge Road, New York, N. Y.	
STANLEY MARGARET E.....	1517 Lurting Ave., Bronx, N. Y.	
TOBEY, CLAIRE H.....	1626 West 6th St., Brooklyn, N. Y.	
VALENTA, JARA HENRY.....	417 East 72nd St., New York, N. Y.	
VAN WEST, MARJORIE E.....	718 West 178th St., New York, N. Y.	
YARNELL, HELEN.....	149 East 40th St., New York, N. Y.	

Ornamental Modelling

N. ART	ALICATA, RICHARD	1460 59th St., Brooklyn, N. Y.
1934	ANTINORO, JOSEPH	350 East 15th St., New York, N. Y.
OM	ASMUSSEN, PAUL	318 East 35th St., New York, N. Y.
	COHEN, SIDNEY L.	1266 East New York Ave., Brooklyn, N. Y.
	COLISTA, FIORAVANTE F.	55 Montrose Ave., Jersey City, N. J.
	DREIBLATT, RUBIN W.	1444 Shakespeare Ave., Bronx, N. Y.
	FOLDING, JOSEPH	2530 95th St., Jackson Heights, L. I. N. Y.
	GABER, JOSEPH G.	1715 Walton Ave., Bronx, N. Y.
	JONES, ELIHU	64 Summit Road, Tottenville, S. I., N. Y.
	KESSELMAN, WILLIAM	908 Tiffany St., Bronx, N. Y.
	KNOPE, ROBERT	525 Bedford Ave., Brooklyn, N. Y.
	LEWENSOHN, BEN.	2138 Tomlinson Ave., Bronx, N. Y.
	PANISH, CHARLES K.	1452 55th St., Brooklyn, N. Y.
	PAUL, HAROLD W.	826 Flatbush Ave., Brooklyn, N. Y.

Sculpture

N. ART	BALABAN, WILLIAM P.	145 Second Ave., New York, N. Y.
1934	CAPPELLI, FRANK	310 East 119th St., New York, N. Y.
Sculp.	D'ASSARO, IGNATIUS	1678 80th St., Brooklyn, N. Y.
	DITORE, SALVATORE	510 8th St., Brooklyn, N. Y.
	FERRARA, VINCENZO	300 East 119th St., New York, N. Y.
	GOODMAN, HENRY	321 East 178th St., New York, N. Y.
	LEWENSOHN, SAN	654 Dahill Road, Brooklyn, N. Y.
	LONZAR, JOSEPH	228 West 48th St., New York, N. Y.
	McQUADE, PETER J.	2527 Valentine Ave., New York, N. Y.
	VIRZERA, SALVATORE	Box 166, Howard Beach, L. I., N. Y.
	WEITZMAN, MARTIN	1784 Bryant Ave., Bronx, N. Y.

Furniture Design

N. ART	BARAZZOTTO, OSCAR C.	1440 Zerega Ave., Bronx, N. Y.
1934	BOCKES, INEZ BEULAH	620 Hudson St., Hoboken, N. J.
FD	CALLEGARI, JOHN	102-24 Corona Ave., Corona, L. I., N. Y.
	CARROLL, CONSTANTINE	543 West 129th St., New York, N. Y.
	CASAGRANDE, ORESTE M.	719 27th St., Union City, N. J.
	DeGRAW, CHARLES R.	129 West 52nd St., New York, N. Y.
	DOYLE, MARGARET	124 West 96th St., New York, N. Y.
	GALATI, CORRADO P.	2245 First St., Brooklyn, N. Y.
	GASSER, EDWARD B.	31-37 35th St., Astoria, L. I., N. Y.
	GLADSTONE, JOHN	163 Ocean Ave., Brooklyn, N. Y.
	GRENIER, J. ALFRED	2543 McIntosh St., East Elmhurst, L. I., N. Y.
	GUNKEL, MARJORIE D.	205 East 79th St., New York, N. Y.
	KALBREYER, MURIEL	136-98 Roosevelt Ave., Flushing, L. I., N. Y.
	KIRKLAND, FRANCES	226 East 203rd St., New York, N. Y.
	KNAPP, MARGARET BACHE	190 Throop Ave., Brooklyn, N. Y.
	MEYER, ADELINE T.	820 East 228th St., New York, N. Y.
	NEUBERGER, HERBERT F.	45-02 111th St., Corona, L. I., N. Y.
	OWEN, GERALDINE A.	355 East 9th St., New York, N. Y.
	PAGE, EVELYN R.	31 Morton St., New York, N. Y.
	PRADL, CAROLYN	53-20 94th St., Elmhurst, L. I., N. Y.
	ROSENZWEIG, ADOLPH	850 Hewitt Place, Bronx, N. Y.
	SCHMITT, ALBRECHT	1779 New York Ave., Brooklyn, N. Y.
	SCHMOLDT, GERTRUDE A.	6 Nash Court, Great Kills, S. I., N. Y.
	SCHUMANN, WILMA A.	2767 Marion Ave., Bronx, N. Y.
	SPIELMAN, HERBERT S.	976 Tinton Ave., New York, N. Y.
	TESDORPF, ELEANOR C.	314 West 24th St., New York, N. Y.
	WEXLER, MONROE S.	1878 Harrison Ave., Bronx, N. Y.
	ZEHL, RICHARD A.	6404 Gates Ave., Brooklyn, N. Y.



ADVERTISEMENT



COOPER UNION FOR THE ADVANCE-
ment of Science and Art.—The public are respect-
fully invited to attend a lecture introductory to the
course of free instruction in the Cooper Institute, on **WEDNES-**
DAY, November 2, at 7½ p.m., in the Great Hall, by Prof. **JOHN**
W. DRAPER, when the organization and objects of the "Union"
will be explained.

Pupils who have received tickets for any of the classes are
required to attend this lecture, to receive directions for the course.

The classes of Prof. Reuben on Physics, of Prof. Hedrick in
Mathematics, and of Prof. Miller in Architectural Drawing, will
be organized on Monday evening, Nov. 7, at 7½ o'clock.

The classes of Professor Draper in Chemistry, and of Prof.
Smith in Mechanical Drawing, will be organized on Tuesday
evening, November 8, at 7½ o'clock.

Punctual attendance is required, as the seats will be assigned
for the term. No one will be admitted to the room after the hour
specified.

The public will be allowed to occupy the seats not filled by
pupils, provided they enter before 7½ o'clock.

The Reading-Room will be open on Monday, November 7, free
to all persons, males and females, between the hours of 8 a.m.
and 10 p.m. By order of the Trustees.

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JAMES T. HODGE, Ass't Sec'y.

COOPER INSTITUTE.—ASTRONOMI-
cal Lecture by Professor O. M. Mitchel, on **TUES-**
DAY EVENING, November 1, commencing at 7½
o'clock. Tickets 25 cents each; to be had of George F. Nesbit &
Co., corner of Pearl and Pine streets; Hutchinson & Wickersham,
312 Broadway; Mechanics' Hall, 472 Broadway; Wm. Hall &
Son, 543 Broadway; T. T. Green, corner of Broadway and Four-
teenth street, and at the office of the Cooper Institute. oc312t*



The first advertisement of The Cooper Union as it appeared in the New York Post in 1859.

A. T. Stewart had come to New York from Ireland in 1822. He was a man of letters, a graduate of Trinity College in Belfast, educated for the ministry. Intending to follow literary pursuits, he began teaching school in Roosevelt Street near Pearl. Chance made him a merchant. He had loaned some money to a friend who opened a small dry-goods store. The friend failed in his venture. To save his own money Stewart took over the stock. To save the stock he concluded he would have to freshen it with new goods. He went back to Ireland, took with him all the money he had—some \$3,000 saved from his patrimony—bought some Irish linens, returned to New York, and on the morning of September 2, 1823, announced (in single column) in the New York Daily Advertiser:

September 2, 1823

NEW DRY GOODS STORE

No. 283 Broadway

Opposite Washington Hall

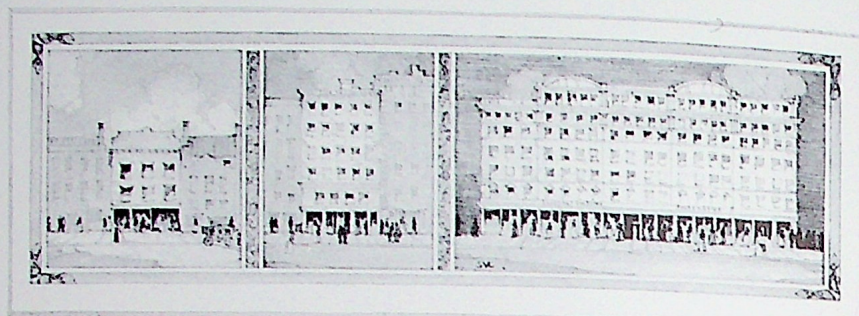
A. T. Stewart informs his friends and the public, that he has taken the above store, where he offers for sale, wholesale and retail, a general assortment of fresh and seasonable DRY GOODS: a choice assortment of IRISH LINENS, LAWNS, FRENCH CAMBRICS, DAMASK, DIAPER, ETC.

N. B. The above goods have been carefully selected and bought for cash, and will be sold on reasonable terms to those who will please to favour him with their commands.

The little store prospered from the start. Needing more room it moved in 1826 to 262 Broadway, and soon again to 257 Broadway. By 1848 the business had grown so large that to accommodate it Stewart built the great marble store at Broadway and Chambers Street still standing and housing The Sun.

In 1859, Peter Cooper, a mechanic of New York revolutionized the educational system of the time, by opening Cooper Union—a free night school in science and art for the industrial worker—located at Astor Place and Fourth Avenue.

Three years later A. T. Stewart moved uptown, erecting the building that covers the block from 9th to 10th Streets, Broadway to Fourth Avenue.



A. T. STEWART'S DOWNTOWN STORES
First at No. 283 Broadway, then at 262 and 257 Broadway, finally in 1848 in the marble building at Broadway and Chambers Street, opposite City Hall, now owned and occupied by The Sun.

Wanamaker Succeeds Stewart

In 1862 Stewart leased part of the old Randall Farm at Astor Place, bounded by Ninth and Tenth Streets and Broadway and Fourth Avenue, and erected at a cost of \$2,750,000 the great six-story iron building, housing the business which Wanamaker purchased in 1896 and made his own—the opening announcement on November 16 saying:

"This is not to be a Department Store, but an aggregation of stores, each complete of its kind — an evolution of the ideas that made in its day the store of A. T. Stewart the model retail store of the world."

Ten years later the Stewart store was so far outgrown that a new and larger building was necessary. Many stores had then moved uptown. Wanamaker carefully considered the situation. His as-



JOHN WANAMAKER'S NEW MEN'S

sociates were rather inclined to follow. But sentiment for the old Stewart Store was strong, and there was weight to the business consideration that the higher rents of uptown locations must add to the cost of doing business. He determined to stay on the ground, and in 1906 erected on the block between 8th and 9th Streets and Fourth Avenue and Broadway a new sixteen-floor store, connecting with the old Stewart building by a three-deck bridge and two tunnels, giving easy access from one building to the other. The bridge he called "The Bridge of Progress"—as indeed it was—linking the progress of A. T. Stewart with the progress of John Wanamaker, and combining the best of both merchants in a store that soon became the largest in New York.

In opening the new building in April 1906, John Wanamaker published over his own signature a proclamation which was like his early crusading announcement:

"Under the sun, in the fullness of time, there has arisen that which is new. On the spot where they that were wise in the world of business have said that great business would never more come, has been erected a splendid structure—a building which, combined with this old A. T. Stewart store presents the most vast and magnificent establishment for retailing that exists today on this continent or any other.

"The same quality of business courage which made Alexander Stewart determine to establish New York's center of retailing at the corner of this old store, then so far uptown, was present in the builders of this new structure when they determined that here, now away down town, should remain the center of business life and activity.

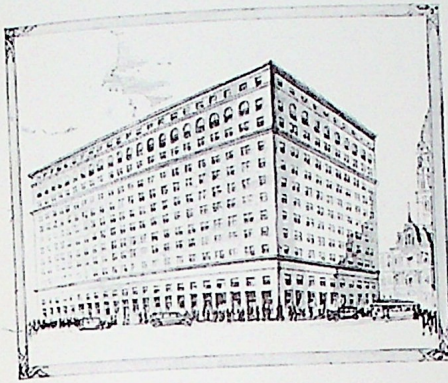
"The permanency of Astor Place as a retail center of New York City is secured, as long as Wanamaker's endures."

The building, he announced, was specially constructed for a particular purpose, to install a new kind of furnishing and decorating business. Excepting on the main floor, it is devoted exclusively to furniture, draperies, carpets, china, glass, pianos, house-furnishings and spacious, light and large workrooms and stockrooms.

"The old A. T. Stewart business now seems small and antiquated in comparison with the present organization and equipment of the Wanamaker business in New York, which now consists of three complete exclusive stores.

"First—The Woman's Store, wholly for Dry Goods and Wearing Apparel. The Man's Store, on the new building.

celebrating 111 Years of A. T. Stewart's, now Wanamaker's at Astor Place and Fourth Avenue



JOHN WANAMAKER PHILADELPHIA
A great granite store, covering a city-block, next to City Hall, acclaimed by many merchants as the finest store unit in the world.



A. T. STEWART'S UPTOWN STORE—
1862—At Broadway and Tenth Street, opposite Grace Church, the first iron store erected in New York City—and now part of Wanamaker's.

exclusively for Men's and Boys' Wear.

"Third—the remainder of the new building from first gallery to roof devoted exclusively to Furnishing and Decoration."

To this trinity of specialization was added in 1916:

A Fourth—The Downstairs Store, a new kind of lower-price store with dependable merchandise, occupying the basements of both buildings.

In 1925, four and three-quarter New York City blocks of floor area were added to the Wanamaker service, by the completion of the south building in its Broadway and Eighth street corner, where a smaller building had remained because of unexpired leases, and by the flooring over of the Rotunda in the center of the original structure.

Fourteen new electric elevators were added—8 passenger, with a capacity of 6000 an hour, equipped with latest safety and quick-leveling floor devices with folding doors opening full width of cars—and 6 freight elevators.

Some Recent Improvements

Since 1925, other extensive improvements have been made in both buildings—an entirely new lighting system on the street floors; redecoration in color of the Stewart Rotunda always famous for its

architectural beauty; establishment of the Silver Courts and Jewelry Store in the grand court of the south building; removal of display bulks from the windows of the north building, bringing the interior of the store within plain view of the street; and rearrangement of selling sections and floors to give better service.

A Modern House and a Twentieth Century Shop of modern furniture have been installed on the furniture floors, for the suitable display of the new furniture that is finding favor today—modern but not modernistic, and a series of three-room apartments with complete sets of furniture for living-room, bed-room and dining-room at popular prices—\$200, \$300, \$400, \$500, \$600.

And now we have ready a floor of inexpensive fashions—dresses, coats, suits, millinery, shoes—an enlargement of the famous inexpensive dress section that was on the third floor now moved to the first floor for better service, and joined by coats, suits, millinery and shoes.

This move makes possible a rearrangement of the third floor, giving more space to boys' and youths' clothing adjoining girls' and children's clothing.

The Philadelphia Wanamaker's

The Philadelphia Wanamaker's, which was founded in 1861 by John Wanamaker as the "Oak Hall" clothing store for men's and boys' clothing and in 1876 as a "New Kind of Store" which developed into a general business known 'round the world, now includes the magnificent structure covering a city block at City Hall, completed in 1911, and a new "Men's Store" at Broad and Chestnut occupying the lower seven floors of the new 26-story Liberty-Lincoln building of granite, recently erected by its owner, the John Wanamaker Philadelphia Corporation.

At the peak of the majestic building is a spacious bell tower, housing the famous

Founder's Bell. This bell was made at the order of the late Rodman Wanamaker as a memorial to his father and was originally placed atop the main store building of John Wanamaker Philadelphia in a specially constructed tower.

For almost sixty years, John Wanamaker searched for the right place to build the right kind of a store for men. It was to be the finest Men's Store in the world.

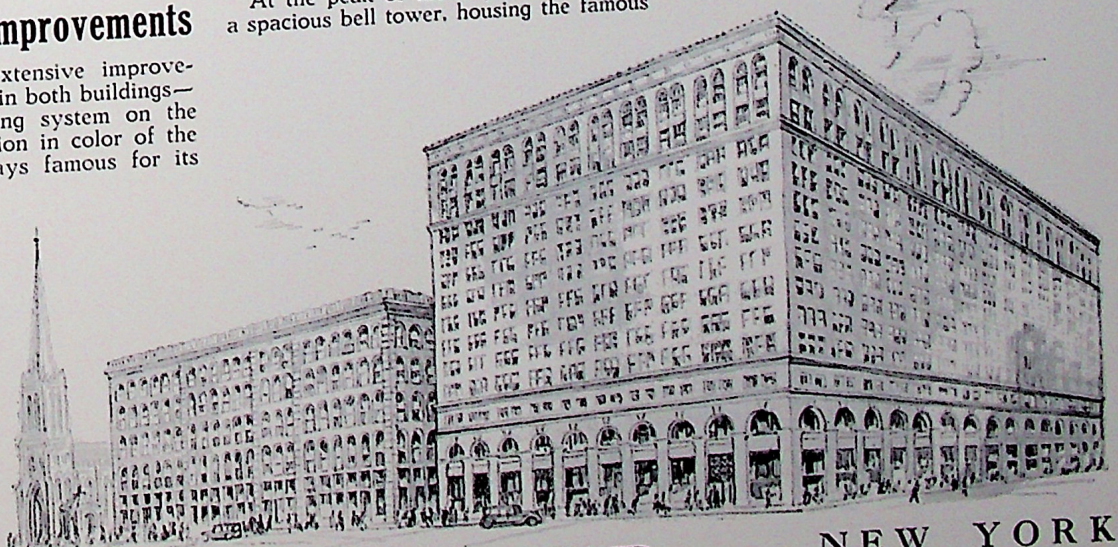
And now the store is here!

These three Wanamaker stores, with a combined purchasing power and unified control, are serving the public with modern efficiency and with the prestige and goodwill that could only come from an A. T. Stewart and a John Wanamaker.

And in congratulating Cooper Union, with neighborly friendship, upon the completion of 75 faithful and fruitful years, during which it has given free instruction to over 200,000 men and women, we feel that we are expressing the spirit of the Founder of the Wanamaker business who labored all his long life for the advance of education.

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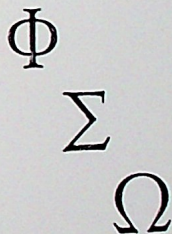
HOTEL PARK CENTRAL

Saturday, April 28, 1934

Subscription
\$2.50 per couple

Dancing
9:30 to 3:00 a.m.

DRESS OPTIONAL



Phi Sigma Omega Fraternity

announces an

Informal Dance

at

THE HOTEL COMMODORE
Saturday, May 26th, 1934

Harry Arnold
and the
Clubmen

Dancing
9:30 till 2:30

Subscription — \$3.00 per couple

OFFICIAL PHOTOGRAPHER
FOR
"THE 1934 CABLE"



The Arthur Studios considers it a privilege to have been connected with Mr. William P. Reuss, Editor-in-Chief, Mr. Frank E. Knipper, Business Manager and Mr. Frank A. Tracey, former Business Manager, in the construction of this beautiful volume and wishes to thank them for their splendid cooperation.



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"Jahn and Ollier Again"

In the foreground - Ft. Dearborn re-erected
in Grant Park on Chicago's lake front.
Illustration by Jahn & Ollier Art Studios.

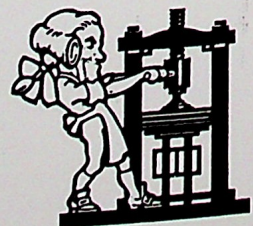
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The production of the 1934 CABLE did not mean the gathering of millions of dollars; it did not necessitate the conquering of an ocean. It did, however, mean months of continued effort on the part of the editors to produce the beautiful volume you now have the pleasure of reading.

It has been a memorable experience to work with the editors of this book, especially William P. Reuss, editor-in-chief, Francis E. Knipper, business manager, and Frank A. Tracey, former business manager. Their faithfulness, their conscientiousness, their enthusiasm, their perseverance, have been an inspiration to us.

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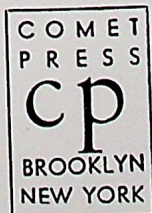


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